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AVIATION AND COSMONAUTICS

Past, Present, Future of Air Forces Reviewed

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in Russian

No 2, Feb 88 (signed to press 31 Dec 87) pp 1-3

[Article by Mar Avn A. Yefimov, CINC of Air Forces, Deputy USSR Minister of Defense, Twice Hero of the Soviet Union: "Born of the Great October"]

[Text] The valorous USSR Armed Forces are 70 years old. This is a banner event in the history of our socialist state and of its Army and Navy! A feature of the present holiday is that it is being celebrated right after festivities dedicated to the 70th anniversary of the Great October Socialist Revolution.

The path covered has been difficult and contradictory. Along with successes and grandiose achievements our people had to experience the bitterness of losses and withstand stern ordeals while displaying supreme selflessness and enormous courage.

Vladimir Ilich Lenin taught that "any revolution is worth something only when it is able to defend itself." Throughout the 70 years of heroic history of the Land of Soviets our Armed Forces have been performing their sacred duty to the Motherland honorably and have been standing vigilantly on guard over peace and socialism. Foundations of the young Republic's air might were laid down, principles of employment of military aviation were developed, and cardinal questions of training aviation cadres were resolved in the first years of Soviet power under party leadership and at Lenin's initiative. The Bureau of Commissars of Aviation and Aeronautics, established on the third day after the revolution, played a major role in development of the Soviet Air Force. It directed formation of the first socialist air detachments. Foundations of the operational art and tactics of air arms were laid down at that time. I. Pavlov, A. Sergeyev, N. Yatsuk, A. Lapchinskiy, M. Stroyev and others made a great contribution to generalizing combat experience.

Scientific research began to develop in the country at a fast pace from the beginning of the 1920's. Well-known scientists S. Chaplygin, A. Yuryev, B. Yuryev, V. Vetchinkin, G. Mushnyants, K. Ushakov, B. Stechkin, G. Sabinin and V. Pyshnov made a substantial contribution to development of theoretical thinking regarding aviation. They displayed creative boldness and originality in solving a number of major scientific and technical problems of aviation's tactical employment.

A firm scientific and material-technical base managed to be created for rapid development of Soviet aviation in the years of the country's industrialization. For example, in the 1st Five-Year Plan the Air Forces' aircraft inventory increased 2.7 times compared with 1928 and not only was comparable in numbers with air forces of the leading capitalist countries, but even exceeded them.

The familiar VKP(b) [All-Union Communist Party (Bolshevik)] and Council of People's Commissars Decree "On Reorganization of Red Army Forces" adopted in February 1941 planned the activation of 25 air division headquarters and over 100 new air regiments in the shortest possible time periods. Half of them were to be equipped with new aircraft. The work of restructuring aviation rear entities was carried on actively in this same period, but at that time the set of planned measures was not completed. Only 19 new air regiments had been activated by the beginning of the Great Patriotic War. In this period our party gave serious attention to the training and upbringing of air cadres. There were 3 air academies, 78 flight schools and 18 technical schools and military schools in existence.

In celebrating the grand jubilee we cannot help but take note of the heroism and courage of Red military pilots; the valor and boldness of legendary crews of V. Chkalov and M. Gromov who made intercontinental flights; and the selflessness and staunchness of Soviet internationalist pilots who bravely fought in the sky of Republican Spain, for the freedom of China, and in assisting the fraternal Mongolian people. Seventy-two of our internationalist pilots were awarded the title, Hero of the Soviet Union, and S. Gritsevets, G. Kravchenko and Ya. Smushkevich received it twice.

We also pay due respect to those who headed the Air Forces in various years and put much physical and emotional effort into their development. These are people well known to the country: A. Sergeyev, A. Znamenskiy, P. Baranov, Ya. Alksnis, A. Laktionov, Ya. Smushkevich, P. Rychagov, P. Zhigarev, A. Novikov, K. Vershinin and P. Kutakhov.

The Soviet Air Forces honorably withstood the stern ordeals and enormous load in the very difficult years of the Great Patriotic War. Under difficult conditions of the grandiose battles which unfolded the party Central Committee and Soviet government took a number of urgent steps to strengthen the Air Forces, restructure work of the country's aviation industry, and train and indoctrinate air cadres. Soon more and more new aircraft—fighters, attack aircraft, bombers—and more advanced cannon, aviation ammunition, radios, radars, and air navigation equipment began to come into the inventory of small and large units as a result of enormous organizational work by the party and selfless labor of the people.

There were also considerable changes in the Air Forces organizational structure. In 1942 large units of long-range aviation were consolidated as Long-Range Aviation and subordinated to the Headquarters, Supreme High Command. A. Golovanov was appointed CINC of ADD [Long-Range Aviation], and 17 air armies were activated at that same time.

New forms of Air Forces employment saw further development in the course of combat operations. This considerably enriched the Soviet Air Forces operational art.

Our combat airmen, engineering-technical personnel, and other specialists made a substantial contribution toward winning victory, which came at a high price and at the cost of spilled blood and the loss of friends and comrades in arms and kinsfolk. But in a clash with elite forces of world imperialist reaction that was unprecedented in the history of warfare, Soviet aviators displayed mass heroism in close coordination with personnel of other branches of our glorious Armed Forces. By their courage they showed boundless dedication to the socialist Motherland and allegiance to the ideals of October.

Pilots of Frontal aviation and Long-Range Aviation alone flew over three million combat sorties and inflicted heavy loss on the enemy in personnel and equipment during the Great Patriotic War. Soviet aviation destroyed 57,000 fascist aircraft in air battles and at airfields. Air combat often acquired a group nature and developed into air battles with the participation of major air forces.

The Soviet Air Force also took an active part in defeating militarist Japan.

Soviet aviators wrote unfading pages in the heroic annals of the Armed Forces by their military valor in defending the Motherland of October, and the people recognized the aviators' military exploits on their merits. Over 200,000 military aviators were decorated with orders and medals, 2,420 were awarded the HSU title, 65 pilots received this high title twice, and renowned aces A. Pokryshkin and I. Kozhedub received it three times.

The BI-1 fighter with liquid-fuel rocket engine (ZhRD) was built and tested in our country in a short time period during the Great Patriotic War under the direction of V. Bolkhovitinov. It marked serious qualitative transformations in our aviation and subsequently changed its appearance.

Aircraft of new types with jet and turboprop engines began coming into our Air Forces inventory in the late 1940's and early 1950's. Helicopter production unfolded widely in the country. Air units equipped with the rotary-wing craft began to be activated.

Much credit for outfitting the Air Forces with new combat equipment belongs to remarkable aircraft designers O. Antonov, S. Ilyushin, N. Kamov, S. Lavochkin, A. Mikoyan, M. Mil, V. Myasishchev, P. Sukhoy, A. Tupolev and A. Yakovlev; to creators of power plants V. Dobrynin, V. Klimov, S. Izotov, A. Lyulka, A. Mikulin, P. Solovyev and S. Tumanskiy; as well as to toilers of the aviation industry. It was impossible to re-equip the Air

Forces in short time periods without constant development of scientific aviation theory. Academicians S. Korolev, M. Keldysh, G. Svishechev, V. Struminskiy and other well-known Soviet scientists worked actively in solving its problems.

Test pilots cleared the path to the sky for jet aircraft. Scorning danger and ready for any surprises, they courageously stormed the unknown. The HSU title was conferred on many of them for successful tests of new aviation equipment models. Among those distinguished were S. Anokhin, G. Bakhchivandzhi, A. Grinchik, Yu. Garnayev, M. Ivanov, V. Ilyushin, A. Kochetkov, V. Kokkinaki, G. Mosolov, P. Opadchiy, A. Perelet, G. Sedov, P. Stefanovskiy and others.

The organizational structure of air regiments and large units of the Air Forces also was perfected with the influx of new aviation equipment.

Today there are aircraft in the Air Forces inventory capable of delivering strikes against targets located in the deep enemy rear or in the sky, and of moving troops and heavy combat equipment over long distances. They include long-range, front, and military-transport aviation. Flight crews of Army aviation, which functions directly in the interests of large and small combined-arms units, also have a great role to play in modern combat. Army aviation is equipped with helicopters outfitted with various weapons and reconnaissance equipment.

A major role in creating modern combat aircraft and helicopters was played by R. Belyakov, G. Novozhilov, M. Tishchenko, N. Kuznetsov and P. Solovyev and by workers, technicians, and engineers engaged in their production.

Many small and large Air Force units are celebrating the Armed Forces jubilee with high indices in combat and political training. They include the fighter-bomber regiment commanded by Col V. Shuldov. We also have many other military collectives which managed to achieve high results in the process of restructuring and to continue the best traditions of Soviet pilots both of the Great Patriotic War period and of the postwar generation.

Air Forces personnel worthily perform their constitutional duty to the homeland inspired by paternal concern of the Communist Party and Soviet government and by the constant attention of their people. They are ready for an exploit at any hour for the sake of defending the homeland's interests.

Military aviators are always where it is difficult. When the accident occurred at the Chernobyl AES [Atomic Electric Power Station], helicopter crews headed by Capt S. Volodin, Capt A. Kryshchopov, Sr Lt S. Korolev and other fearless aviators flew there.

Our crews also display composure, valor, and high flying proficiency daily in the uneasy sky of the Republic of Afghanistan. The Motherland has recognized their international military exploit on its merits.

The profession of aviator also demands enormous self-sacrifice and sometimes genuine heroism in peaceful days. Every flight in a modern aircraft always is a test of the crew's moral-political and psychological qualities and air training.

A high degree of air schooling is acquired in the course of strenuous training under near-real combat conditions without indulgences, oversimplifications, ostentation and stereotypes. It should not be forgotten that combat does not forgive poor training, weak will, or carelessness. While there was a heavy reckoning for this in the past, it will be considerably more severe in modern warfare. This is why the question is posed so acutely today about keeping all branches of the Armed Forces in constant combat readiness.

USSR Minister of Defense Army Gen D. T. Yazov emphasizes: "Especially rigid demands are being placed today on combat readiness of strategic nuclear forces, Air Defense Forces, Air Forces, and all forces and resources performing alert duty. They must be capable of beginning to execute the combat missions assigned them at any moment and in any situation." Based on these high demands we are obligated to make a critical and realistic assessment of what has been achieved and to analyze more exactly and thoroughly the positive processes occurring in the Air Forces development. We have to make effective use of the effect of restructuring on the many-sided activities of the Air Forces in the interests of a further increase in combat potential of every regiment, large unit, and air arm.

A broad field now is opening up for active, purposeful work of commanders at all levels, staffs, political bodies, and party and Komsomol organizations. Life insistently demands that we delve seriously and in a businesslike manner, in the spirit of changes occurring in the country, into how the process of aviator training is organized and be constantly concerned with complete, rational use of every hour of classes and of every flight section. Everything is important here: well-conceived planning and effective control over fulfillment of exercises planned for each pilot and crew, as well as the professional and methods expertise of air commanders and chiefs and concern for comprehensive logistic support to aviator activities.

Simulators, electronics, and training television are being used more and more widely in the combat training of Air Forces personnel. This contributes to high practical results and a saving of fuel and equipment life. The entire set of simulation equipment must be used rationally and thriftily in organizing classes and practices with personnel and in preparing for flights and tactical flying exercises.

We have to learn lessons from results of the past training year. We will not flatter ourselves over successes or be satisfied with the fact that on the whole certain positive improvements have occurred in Air Forces activities and that there has been somewhat of an increase in quality of air, weapon and tactical training. Resting on laurels is not among our traditions. It is important to remember that there is no limit to improving aviators' combat training and there can be no bounds on raising the combat readiness of small and large Air Forces units. There is nothing in combat readiness that we can waive, put off until tomorrow, or fulfill in any old way. Any omission or miscalculation can result in a major failure and lead to nonfulfillment of the assigned mission. Therefore keeping the combat readiness of our large and small units at a high level and constantly improving it is an immutable law for the Air Forces Military Council, Main Staff, all directorates and services, air commanders and chiefs at all levels, and every military aviator regardless of rank or position.

Military cadres bear a special responsibility to the party, the people, and the socialist homeland for the status of combat readiness. A further increase in Air Force combat readiness and an improvement in the aviators' air, weapon, tactical and technical training is directly dependent on the quality of their training and acquisition of necessary skills which will help them successfully perform a combat mission under all conditions.

Tactical flying exercises, command and staff exercises, practices, as well as scheduled flights play a major role here. The tactical teamwork of crews, flights, squadrons and air regiments is shaped and strengthened in the process. Personnel gain skills in employing weapons and operating modern equipment, master effective methods of combat operations and become tempered morally and physically.

An increase in the scope of knowledge and skills, confident mastery of complex aviation systems, and new demands on combat readiness dictate a need for significant improvement in the organization and intensity of military labor and for giving greater practical direction to the entire system of aviator training and upbringing.

Effective accomplishment of combat training missions is directly dependent on proper and rational utilization of the material-technical training facility in the interests of improving the professional training of flight personnel, engineering-technical personnel, and specialists of the aviation rear, communications, and RTO [electronic support] of the Air Forces. Therefore, all commanders and staffs have to work constantly on its improvement and renewal.

Results of the past training year indicate that some commanders and chiefs as well as headquarters-level officials proved not ready to assess their work fundamentally and self-critically from positions of the 27th CPSU

Congress and subsequent party Central Committee plenums. In this regard they were unable to activate their official work in the spirit of restructuring in any noticeable way or raise their level of personal responsibility for constant combat readiness of entrusted military collectives. These people can in no way renounce chronic approaches to training and educating subordinates. They continue to display listlessness and inertia in performing official and party duties. In the last training year military collectives headed by generals G. Bednov and V. Kozlov and by officers A. Budasov, A. Vodogreyev and N. Patrakov did not cope with assigned missions.

In some units one and the same mistake is repeated from year to year in organizing flight sections and preparing crews for LTU [flight tactical exercises] and field firing.

The slow growth in the qualitative indices of improving aviators' professional training and the individual miscalculations in training the crews of squadrons and regiments sometimes occur because of the inertia of existing normative documents and various displays of overcautiousness in the interests of safety which restrict the flight personnel's initiative and creativeness.

At the present time, however, modern tactics of air arms with engagement of targets at maximum ranges and altitudes using feints and the set of different kinds of weapons under conditions of the enemy's active employment of modern EW resources is still being developed timidly. Some military collectives give insufficient attention to preparation of flight crews for operations against slow, low-flying targets, and to combat training and teamwork practice as part of squadrons and regiments. We have to regard the accomplishment of these important tasks very seriously in the new training year, and appropriate commanders and staffs must establish strict control over progress in performing these exercises.

Military science has a major role to play in improving the quality of combat training in all Air Forces elements. In this area our scientists should strive to improve the effectiveness of employing modern aviation systems in accomplishing difficult combat missions. We have to be more persistent in elaborating specific recommendations for improving the training of command, flight, and engineering-technical personnel in Air Forces higher educational institutions and for training and educating aviators, and we have to see the prospects for further development of the Air Forces and an improvement in their organizational structure with consideration of new phenomena and trends occurring in military affairs.

This demands new approaches, fundamental restructuring, revision, and resolute change in leadership methods both on the part of those who head large units and on the part of the Air Forces central staff. We must rid ourselves of bureaucratic methods of leadership and give small units and subunits specific practical assistance in successfully accomplishing missions assigned them in the new training year.

The campaign against accidents is a matter of great state importance in the work of commanders, political bodies, staffs, and party and Komsomol organizations of the Air Forces, and of all aviation specialists. This is a special sector in the work of all Air Forces military cadres. An analysis shows that around 60 percent of preconditions for flight incidents occur because of poor and sometimes formal organization of flights and violations of flight training methodology, and 11 percent occur because of the flight personnel's lack of discipline. The Air Force Military Council is especially troubled that around half of preconditions for flying incidents occur through the fault of leaders.

A merciless campaign must be waged against such a situation. The fact is that incomplete training, poor flight preparation, technological lack of discipline and negligence of the pilot, crew, instructor, flight operations officer, and specialists of the aviation engineering service lead to the loss of costly equipment, to irreparable moral damage and to the loss of people.

There is also a need to dwell on the state of military discipline, which is a firm foundation and very important factor of combat readiness and might of the Air Force. Successful troop activities are impossible without strict, precise compliance with regulation requirements and the implicit fulfillment of orders and instructions of commanders and chiefs. Now it is seen more and more clearly that the problem of discipline is rather complex and many-sided. An increase in its role under present-day conditions demands persistence, great self-control and new approaches on the part of Air Force command and political cadres. This problem cannot be solved by conferences and general appeals. Needed here are active, effective actions, great painstaking individual work, and closeness to subordinates. We cannot forget that discipline is determined by firm regulation order, well-arranged everyday life, skilled placement of people, the organization of cultural leisure, adherence to noble traditions, and the authority of the commander, political officer, and staff officer.

Propaganda of the standards of military ethics and the high, noble moral qualities of Soviet military personnel which have always distinguished defenders of the homeland throughout the history of our Armed Forces acquires special significance under present-day conditions.

Today we are obligated to speak at the top of our voices about the honor, dignity, and historical calling of our privates, NCO's, warrant officers and officers in ensuring security of the Soviet Motherland and the peaceful, creative labor of our people, and about each person's personal responsibility for faultless performance of his or her military duty.

The signing of the Treaty Eliminating Intermediate and Shorter Range Missiles became a historic event of the past year. Now there will be an even stricter demand on

the military person for the quality of alert duty, for high combat readiness, and for the state of military discipline. The principal point of application of forces is on improving professional expertise and combat and political training, and on attaining more substantial results in raising vigilance and combat readiness.

These days combat training is in full swing at airfields, in training classrooms and auditoriums of Air Force higher educational institutions, in long-range flights, and at the ranges. Its intensity is growing with each day. Military aviators are taking a stern test. They have to accomplish an entire set of difficult and responsible missions in the year of the 70th anniversary of the Soviet Armed Forces so as to elevate the status of air training to levels of higher quality and honorably perform their patriotic and international duty of defending socialism.

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More Effective Party Support to Flight Safety Needed

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[Article by Col Gen Avn L. Batekhin, member of military council, chief of political directorate of Air Forces: "Effectiveness of Party Influence"]

[Text] Air Forces units and subunits are picking up the pace of restructuring in all spheres of the personnel's life and service.

Good changes are noticeable in people's awareness, psychology, and attitude toward the assigned job. The work of many commanders, political bodies, staffs, and party and Komsomol organizations is actively improving; they have begun to devote more attention to combat and political training, to a further increase in vigilance, to a strengthening of efficiency and discipline, and to assurance of flight safety.

The majority of military aviators are celebrating the 70th anniversary of the USSR Armed Forces worthily, with substantial achievements in military labor. The first results of winter training convincingly indicate their resolve to continue to maintain a high patriotic enthusiasm in every way and completely fulfill socialist pledges.

Today it is becoming increasingly clear that it is impossible to advance a single step forward without new approaches and bold, innovative solutions, without the ability to work to the utmost with an eye to the future, without resolutely overcoming inertia and formalism in all their manifestations, and without affirmation of the

unity of words and action. Therefore, it is very important that political bodies and party organizations take the fate of restructuring in their own hands and give it a businesslike, dynamic, irreversible character.

USSR Minister of Defense Army Gen D. T. Yazov emphasizes in his book "Na strazhe sotsializma i mira" [On Guard Over Socialism and Peace]: "Among the urgent priority tasks of restructuring in the Armed Forces also are a reinforcement of party and political influence on all aspects of the personnel's life and work, and an increase in effectiveness of party-political work." In fulfilling resolutions of the 27th party congress and subsequent CPSU Central Committee plenums, the commanders, political bodies, and party and Komsomol organizations are striving to conduct party-political work in a close tie with missions being accomplished by the Air Forces, placing emphasis on instilling in each aviator a high sense of responsibility for the quality and safety of flight operations.

The fundamental principle of training air units and subunits is to learn what is needed in war. It is important to master advanced methods of conducting combat operations day and night under various geographic and climatic conditions while at the same time guaranteeing high quality and reliability of flight operations. This cannot be achieved without having ensured that the training process is brought as close as possible to real combat conditions; without a quest for new, more effective procedures for training and indoctrinating personnel; and without a resolute struggle against violations of the laws of flight duty.

CPSU Central Committee General Secretary, Comrade M. S. Gorbachev emphasized at the ceremonial session dedicated to the 70th anniversary of the Great October Socialist Revolution: "The success of restructuring depends above all on the energy, purposefulness, and force of example of the party and of every party member." He remarked that a fundamental improvement in the work of party organs and personnel becomes today's primary task.

There also are military collectives in the Air Force which rightly can be called the trailblazers of restructuring. Air regiments where officers M. Khanyukov, A. Ryabov, and I. Gvozdeva serve have been achieving high results in combat training and working without accidents for several years in a row. Party organizations of these units do not remain aloof from urgent problems, but do everything to see that every aviator strictly complies with the laws of flight duty.

A number of circumstances move party concern for flight safety to the foreground. Party members discuss the principal ones—economic, moral and psychological circumstances—in a businesslike manner at party meetings and at sessions of bureaus and party committees. Accounts are regularly heard from CPSU members

about their contribution to accident-free flight operations. What is most valuable is that members of party committees and bureaus perform individual political educational work actively and purposefully and take part themselves in various kinds of preventive measures. Unit political departments orient party organizations toward this, monitor their work, and give them assistance.

The majority of Air Force political bodies are resolutely and consistently conducting a course toward restructuring. It is being firmly implemented in particular by political departments of air units in Military-Transport Aviation and the Air Force of the Moscow and Volga military districts. What is noteworthy in their activities? I will mention only some of the most important directions in which political bodies are effectively influencing the work of primary party organizations and prompting them to achieve high end results in combat training and in ensuring reliability of flying work.

Flight safety here is rightly considered a process in which there are no trivial matters. Its successful development can be ensured only if every aviator is mobilized for this vitally important job. Only the primary party organizations can reach such a broad contingent of people.

An important role is set aside here for party organizations as the political nucleus of the collective in creating an atmosphere of intolerance toward the shortcomings, indifference, and self-complacency which feed the deep roots of accidents so abundantly in a number of other units.

In short, the value of such approaches to accomplishing flight safety tasks lies in the fact that they properly ensure precise functioning of the leadership mechanism at the "political department/primary party organization" level. This permits an objective analysis of military aviators' combat and political training and their attitude toward performing official duties; a public evaluation of each party member's work; and establishment of an atmosphere of mutual exactingness and conscientious attitude toward the job.

Far-fetched directions, regulation, and bureaucratic restrictions on individual work should be abolished without delay. Party organizations should be given an opportunity to use for themselves the forms and methods of influence on people necessary for the given moment within the framework of the Party Bylaws. It is no secret that short-term considerations continue to prevail over duty for some party committee and bureau secretaries. All kinds of statements such as "that is how it is done," "that was not recommended," "an accounting can be demanded for this" and so on became established and firmly lodged in the consciousness of some party members/leaders over the years. As a result those guilty of people's deaths, the loss of costly aviation equipment, and an unstable moral-psychological atmosphere in the collective often have been outside the

sphere of party action for some reason. It became "awkward" to speak aloud at a party meeting about commanders who were malicious violators of flying laws. And to no purpose! The fact is, everyone knows well that what distinguishes a party meeting from an official conference is that everyone is equal at the party meeting.

Party organizations should resolutely put an end to the "elitist mentality" inherent to some experienced pilots. Sooner or later, conceit and self-complacency lead to the loss of necessary moral-psychological qualities and professional reliability. It often also happens that some pilots' high class ratings are not always confirmed by their proficiency. There is also something for party collectives to think about here. Oversimplification and formalism must be decisively eliminated in this matter. Political departments have to take this up in real earnest.

Another point also is important: while the commanders, political officers and staff officers of air units are doing something to prevent flying incidents, some primary party organizations' contribution to this matter is insignificant for now. Many of them simply do not see the important sectors for applying their efforts. Political departments are guilty of this above all. Serious miscalculations in leadership of primary party organizations were uncovered last year in the Transcaucasus Military District Air Force. Similar deficiencies also are inherent to other political bodies. The impression forms that some political departments have withdrawn from resolving matters of flight safety and have let this work take its own course. Although they do something at times, experience shows that this is clearly insufficient.

Verification of fulfillment continues to be one of the weak points in party work. It is no secret that some political department personnel replace it with hasty "inspector" visits and waste much effort studying all kinds of plans and memoranda and compiling various papers, but lose sight of the important factor—they do not teach the party organizations how to effectively fight accidents and perform lively prophylactic work to prevent undesirable trends. They often display a lack of principle in evaluating instances of an embellishment of reality, unconcern, and indulgences in the training and upbringing process. They replace personal participation in the life and affairs of party collectives with declarative-paper methods of management and an abundance of directions. As a result, not sensing sufficient attention on the part of political departments, primary party organizations lose perspective and become carried away with secondary matters, thus unjustifiably relaxing concern for flight quality and safety.

What must be changed in the work of primary party organizations to get rid of the reasons for accidents? Principal directions which must become the priorities for them should be singled out here. It is necessary for party organizations to become the decisive force in mastering a new and higher level of individual work with

flight personnel in the prophylaxis of flight safety. Their special role lies here. Being at the dividing line of party policy and flight practice proper, squadron primary party organizations are responsible for reliability of the human factor not in general, but in its specific expression. This always has been important for aviation because being a pilot is an individual profession. The pilot often performs assignments while alone in the cockpit. The world of his experiences also is unique and mistakes committed in the air are strictly individual. Therefore, work with him also has to be individual. It is not enough to prepare a combat aviator methodologically to perform a flight assignment; it is also important to attune him morally and mentally. Party organizations are called upon to be a unique generator of such a process.

It is common knowledge that contemporary aviation equipment also involved changes in the nature of flying work. The "pilot-aircraft" system was augmented with a new element—the "program." Unfavorable parameters of flight approached the maximum psychophysiological capacities of the human body. All this long ago demanded new approaches to performing effective individual work with flight personnel, but some in the units underestimate this and pay for it with flying incidents.

There are many examples of this. For example, a young pilot in one unit was authorized to perform advanced aerobatics at low altitude in a period when he was undergoing a course of treatment incompatible with flight duty. In another air garrison everyone looked with indifference at how an immature leader grossly violated requirements of the Manual for Flight Procedures. In a third garrison there was no one who would have opposed sending out a recent school graduate (who twice the day before asked that he not be scheduled for flights for family circumstances) on a flight for air "combat" at low altitude under inappropriate weather conditions.

These and other instances indicate that party organizations have relaxed attention to the personnel and are not burdening themselves with painstaking individual work with each aviator. The fact is that a Leninist style in the work of military cadres presumes closeness to people and an integral combination of exactingness with concern for subordinates.

The fact is that if each person is not set in motion, motivated, and made enthusiastic, then work too will be in the nature of a damping pendulum. By the way, that is how many are acting now, imparting energy to this "pendulum" by angry orders, reprimands, and "excitations." Party organizations have to look for their own approach to different categories of aviators, giving full consideration to the interests, capabilities and individual abilities of each person in the collective. The prophylactic capabilities of objective monitoring equipment, computers and simulators must be used more boldly in

individual work. Party members/leaders, experienced instructor pilots and everyone considered a model of flying reliability must be included in the work.

Individual work means lively contact with colleagues and daily party influence on them. Where this is not understood the people's responsibility and principle and the reliability of the human factor are lower.

Some political bodies themselves contribute to adoption of this stereotype instead of further developing party democracy and resolutely breaking with the stereotype of bureaucratic regulation of party organizations' internal life.

For example, can we really agree with the fact that some of them recommend that party committees and buros conduct so many activities monthly that they would fully suffice for a half-year? People also act improperly in those cases where in their meetings they obligate party organizations to evaluate the work of every party member according to a previously written out scenario, with the compilation and submission of performance appraisals on those who are "restructuring" poorly. This is a gross violation of party democracy. Such "lines" deprive local party collectives of initiative and of objective work at their discretion, and propagate an abstract discussion of questions without resolving them constructively. The "swell" of often insignificant measures, red-tapism and formalism, the inclination for pointless meetings, over-organization, protracted "sitting on the telephone"—all these today are not simply deficiencies but a manifestation of the inertness of some party officials and activists in the work of restructuring.

What do political departments have to do to ensure that their work fully conforms to the spirit of the times? It is necessary to elevate the role and effectiveness of individual work and regard it as the principal job of local party elements. This will not be achieved if the duties of members of party committees and buros in supporting the reliability of each of their party members in flying duty are not spelled out. The large-unit political department has to know who is to work with whom and for what purpose in each primary party organization. Management of this process will consist of daily leadership and party influence on aviators.

It is very important to increase personal responsibility for decisions being made: responsibility of the primary party organization secretary for every mistake and infraction of flight safety measures; responsibility of the regimental party committee secretary for every precondition for a flying incident; and responsibility of the large-unit political body chief for all the most dangerous preconditions.

Every political department chief must be personally involved with flights and their safety. He makes responsible decisions, analyzes the situation for the week and month, and monitors the political support to flight sections. How is this to be done? It is difficult to provide ready-made formulas here.

The only thing that is without doubt is that political department personnel must revise the structure of their work time, be in local areas and party organizations more often, study the people directly at work, and do more individual teaching of party activists. We must have fewer political department sessions and conferences, and we can get by fully without very many memoranda.

Finally, it is important to understand that prevention of any deficiencies is inconceivable without the political department's close tie with the masses of military personnel and without shifting the center of gravity of the political body's work into the primary party organizations.

Political departments should seriously ponder what has to be done to ensure that local party collectives and every party member are in the vanguard of contemporary transformations, of which there are many in the Air Force. The organization, content, and methodology of flight operations are undergoing qualitative changes. Fundamentally new combat training documents have been approved which place primary emphasis on accelerated intensification of the training and upbringing process and its maximum approximation of the demands and conditions of modern combat. Many different restrictions have been lifted. A new methodology of conducting the LTU [flight tactical exercise] is being mastered and there is an improvement in flight training permitting a considerable increase in the aviators' combat proficiency, regulation of their workday, specification of areas of responsibility, and removal of unproductive overload from personnel. There is also much that is new in control of flight operations, which must be continuous, prompt, and based on precise fulfillment of the demands of corresponding manuals and instructions.

The state of discipline is the most unfavorable sector in the work of some party organizations. It is common knowledge that firm discipline and high efficiency do not arise of themselves. They are instilled by the entire tenor of Army life and by creation of an atmosphere of genuine exactingness in each collective precluding indulgence of those who are at variance with the demands of regulations and the rules of flight duty.

The question arises: How can such an atmosphere be created? There are many opinions on this score. Some emphasize the commander's role, others the level of people's awareness, and still others the force of public opinion. It would appear that a comprehensive approach, a uniform front of exactingness in all elements, and common efforts of commanders, political personnel and party organizations are necessary in the campaign for firm discipline. Without such unity it is impossible to count on eliminating flying incidents and preconditions therefor through the personnel's lack of discipline.

Party organizations should strengthen the demands on CPSU members above all in the interests of having no accidents. There must be no party member who violates discipline. It is necessary to apply different forms and measures of party influence in a differentiated manner for deviations from requirements of the CPSU Bylaws and for infraction of flying and technological discipline and the discipline of execution.

Some units take an extremely tolerant attitude toward those who violate order. They are evaluated by easier administrative and moral criteria and the demand remains incommensurably small in comparison with the burden of possible consequences of their miscalculations. Preconditions for flying incidents caused by negligence in preparing for assignments and in flight often are categorized as an inability to allocate attention to instruments or imprecise crew coordination. The "liberties" of leaders in planning and organizing flights are evaluated without proper acuteness.

It is the duty of party members to break decisively with the psychologically harmful rule where a demand is levied for negligence and for an infraction of military discipline and flight regulations only when they already have led to undesirable consequences. The important factor in the work of party organizations is to forestall negative phenomena. The positive experience accumulated in the course of implementing party and government decisions on stepping up the campaign against drunkenness and alcoholism also has to be developed. The desired turning point in flight safety will not come without this.

The work of primary party organizations to provide ideological support to flight safety needs fundamentally new approaches. Taking advantage of a lack of supervision on the part of political departments, some organizations have departed from exerting effective ideological influence on the accomplishment of specific missions and on the military-political thinking of aviation specialists; this thinking has to be developed with consideration of the profession, age, duty category, and air arm.

A subject of special concern for party collectives is increasing the educational capabilities of socialist competition under the motto "Selfless military labor, exemplary service and supreme discipline are our contribution to the cause of the Motherland's defense." It is necessary to achieve exemplariness of party members and all aviators in timely and complete fulfillment of pledges; to introduce to military rivalry a spirit of competitiveness, creativeness, responsibility for stable end results, and irreconcilability toward stereotypes; and to raise the prestige of foremost personnel.

Based on an objective staff analysis of infractions of the laws of flight duty, the party organization is called upon to identify the failed element of the psyche, the tool of party influence which did not function, flaws in the collective's moral climate, pedagogic mistakes of leaders,

the indifference of colleagues, and other factors contributing to the build-up of a dangerous situation. Effective measures for each such instance must encompass the full set of causes and all party members who were parties to them regardless of their official position.

There must be a persistent campaign against oversimplified ideas about the causality of accidents in modern aviation. The fact is that essentially every flying incident today occurs not for one reason, as is sometimes stated, but as the result of several miscalculations and infractions by various specialists.

Of course a methods analysis of the precondition will do much to clarify its causes, but here the original causes of what happened as dictated by psychological factors of the pilot's reliability and by the microclimate in the collective often remain unidentified and accordingly not eliminated. It is the task of political bodies to see that local party organizations publicly identify such deficiencies and to teach them to do this correctly, competently and fundamentally.

Do all political bodies do this? Unfortunately not. For example, the political department in which Officer N. Prozhoga works has not yet given a good account of itself in restructuring. There have been no qualitative changes here either in an analysis of flight safety (it continues to be most often superficial) or in party reaction to deficiencies. As before, businesslike efficiency is clearly lacking. Criticism has not become deeper or more constructive and the inner party life of primary party organizations has not become more spirited. Individual work, personal demands, and attention to people are not manifested as should be the case today.

In short, this political department is taking a conciliatory position for now. For a long while here the objective management of party organizations was replaced by general instructions. Its personnel rarely visited the subunits, had little contact with aviators, and basically judged the work of party organizations according to memoranda and reports. Therefore it cannot be called chance that a serious flying incident occurred here. That is possible only in an atmosphere of irresponsibility, general ignoring of flying laws, connivance, and lack of principle.

Just what did Party Member Prozhoga do? He held a party meeting, punished the immediate culprits, and that was it. He did not learn lessons for himself and did not teach others to draw proper conclusions from similar incidents.

This example indicates once again how a waiting psychology and inertness retard forward movement.

The path of profound changes in the work of political bodies and primary party organizations is a path of difficult struggle of the old and new. Many obstacles and problems are encountered here. They exist in flight

safety even today. Forces of stagnation and indifference still make themselves known. Not everything is going as we would like. The most important preventive measures are being accomplished slowly in places and have not yet produced the proper effect, but the fact is that flight safety is a task of state importance and has to be accomplished without fail. Here the party members called upon to lead collectives have the first say. Their vanguard role, irreconcilability toward deficiencies, exactingness, personal example in complying with flight safety rules, and influence on colleagues have been and remain an enormous moving force in the campaign for safety of flight operations.

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6904

Soyuz TM-4 Crew Biographies

91440068c Moscow AVIATSIYA I KOSMONAVTIKA
in Russian No 2, Feb 88 (signed to press 31 Dec 87) p 7

[Article by V. Lyndin: "The 'Okeany' Receive the Baton"]

[Text] *From a TASS announcement.* The manned spacecraft Soyuz TM-4 was inserted in orbit from the Soviet Union on 21 December 1987. The spacecraft crew consists of USSR Pilot-Cosmonaut Col Vladimir Georgiyevich Titov, commander; Musa Khiramanovich Manarov, flight engineer; and Honored Test Pilot USSR Anatoliy Semenovitch Levchenko, research cosmonaut. The crew's callsign is "Okean."

Biographic pages. Vladimir Titov was born on 1 January 1947 in the city of Sretensk, Chita Oblast. He completed the Chernigov Higher Military Aviation School for Pilots imeni Leninist Komsomol in 1970 and remained there as an instructor. He taught 12 cadets flight proficiency over a four-year period. Then he served as a flight commander in the Air Training Unit imeni V. S. Seregin.

Titov was in the Cosmonaut Training Center imeni Yu. A. Gagarin from 1976 on.

He set off on his first space flight together with G. Strekalov and A. Serebrov on 20 April 1983 aboard the Soyuz T-8, but...

On opening, the parabolic antenna of the on-board radiotechnical rendezvous and docking system did not reach a working position. Nevertheless, the crew together with the Flight Control Center made an attempt to rendezvous without range and velocity measurement sensors. The spacecraft entered the Earth's shadow when only 280 m remained to the station. It is very difficult to visually estimate range and velocity in the pitch-darkness of a space night. The station's lights were approaching quickly, threatening a collision. Braking with the low-thrust engines produced no effect; then Titov

switched on the service propulsion engine. They flew by beneath the station and when they emerged from the shadow they discovered Salyut-7 about 3-4 km away.

On 26 September 1983 Vladimir Titov and Gennadiy Strekalov went to the launch pad a second time to relieve Vladimir Lyakhov and Aleksandr Aleksandrov, who were working in orbit.

The final launch commands sounded. The umbilical tower should move away at any moment. Flame appeared below, but it was somehow from the side and it immediately tore upward, swirling around the launch vehicle. A wave of vibration passed along the rocket structure. "I thought it was a gust of wind," Titov said later. But then came the next wave, which built up quickly. A strong jerk pressed the cosmonauts into their seats—the emergency rescue system had functioned. Solid-fuel engines mounted on the nose cone took the craft a safe distance away from the burning launch vehicle. The descent vehicle made a soft landing 4 km from the launch pad. The cosmonauts were alive and well but their mood was something else. "Again we didn't make it there!" was all that Titov said.

Some hastened to dub him unlucky, but he continued to work with determination. He finished the Air Academy imeni Yu. A. Gagarin by correspondence and readied for a new launch.

Musa Manarov is a Lakets by nationality. This small nationality numbers a little over 100,000 persons, most of whom live on the territory of the Dagestan ASSR. Manarov was born in Baku on 22 March 1951. His father was an officer and the family often had occasion to change its place of residence. They settled in Poltava, where his father began working at an electrical machinery plant after going into the reserve.

On completing school Musa entered the Moscow Aviation Institute imeni Sergo Ordzhonikidze. He ended up in a design bureau by assignment in 1974 and participated in testing space equipment. Two years later he signed a request to be accepted in the cosmonaut detachment. He successfully passed all due commissions and was enrolled in the detachment in 1978.

Candidates for crews of future space expeditions are not relieved of production duties. Manarov combined training with work as part of regional flight control groups. In 1983 he was placed on TDY to the TsPK [Cosmonaut Training Center] imeni Yu. A. Gagarin for training for specific space programs. He again returned to flight control in mid-1986, this time as a shift controller in the suburban Moscow Control Center. The position of SRP—that is the abbreviation for shift flight operations officer in the Flight Control Center—permits gaining valuable experience which later is of great benefit in practical work in orbit. Manarov controlled the flight of

the Mir station when it was functioning in an automatic mode, and for around a month when the watch of Yuriy Romanenko and Aleksandr Laveykin began aboard the station.

Anatoliy Levchenko was heading into orbit for the first time, but if we are speaking about flights in aviation equipment, here he has an enviable service record.

Levchenko was born on 21 May 1941 in the city of Krasnokutsk, Kharkov Oblast, to a worker's family. His father left for the front soon after the war began and died in 1943. The mother remained alone with her son.

Tolya wanted to be only a pilot and nothing else. In 1964 he completed the Chernigov Higher Military Aviation School for Pilots imeni Leninist Komsomol and was sent to Turkmenia for further duty. He flew the MiG-21, one of the best aircraft of that time. His dream came true, but this no longer satisfied him. He wanted to become a test pilot.

In 1971 Levchenko completed test-pilot school under the Flying Research Institute and since then has been working there. During this time he performed tests on 87 types and modifications of flying craft. In 1986 he was awarded the "Honored Test Pilot USSR" title for his great contribution to the work of mastering and testing aviation equipment.

In 1978 I. Volk, one of the leading Flying Research Institute test pilots, suggested that his colleagues try "greater speeds and altitudes." Anatoliy Levchenko was among those who were first to respond to this proposal.

Flight continues. The spacecraft Soyuz TM-4 docked with the Mir orbital complex, aboard which Yuriy Romanenko and Aleksandr Aleksandrov were standing watch, on 23 December 1987. The joint work of the two crews—"Okeany" and "Taymyr"—lasted six days. On 29 December Yuriy Romanenko, Aleksandr Aleksandrov and Anatoliy Levchenko returned to Earth aboard the Soyuz TM-3. Vladimir Titov and Musa Manarov continue work in orbit.

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Mar Avn Kozhedub on Restructuring in Air Forces
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in Russian
No 2, Feb 88 (signed to press 31 Dec 87) pp 10-11

[Article by Marshal Aviation I. Kozhedub, Three-time Hero of the Soviet Union: "To New Achievements Through Restructuring"]

[Text] The 70th anniversary of the Soviet Armed Forces is a unique intermediate milestone from which we can look back, assess the path covered, compare efforts

expended with what has been achieved, and uncover new reserves for acceleration. I experience contradictory feelings on the threshold of the jubilee: pride in the glorious sons and daughters of the homeland who defended the Motherland in the years of turmoil; bitterness for those who were consumed in the conflagration of war; and disappointment that we did not have time or were unable to do that demanded by life.

The Soviet Air Fleet began its history in the days of October. Since then it has worthily fulfilled its duty to the people. Its establishment is linked with the name of V. I. Lenin, who took a personal part in organizing various subunits of the RKKVF [Workers' and Peasants' Red Air Fleet]. This is eloquently attested by the fact that just in the period from 1918 through 1920 Vladimir Ilich signed over 200 documents on questions of aviation's development [razvitiye].

The first generation of Red military pilots was tempered in the crucible of the Civil War. Glorious traditions of Soviet aviators originated and strengthened in the fight against White Guards and foreign interventionists. More than 200 combat airmen were decorated with the Order of Red Banner, the highest award of that time.

Returning to life after terrible devastation and poverty, Russia, which not long before was illiterate and backward, began to turn into one of the leading air powers before our very eyes, as the saying goes. This was a phenomenon for which foreign politicians to this day cannot find an explanation. Meanwhile the answer is obvious: Soviet citizens' supreme faith in a bright and just future forced them to give their all for the welfare of the homeland. Soviet designers A. Tupolev, N. Polikarpov, S. Ilyushin, A. Yakovlev, S. Lavochkin, A. Mikoyan, O. Antonov and P. Sukhoi made an outstanding contribution to the development of domestic aircraft construction. The entire world learned the names of the first Hero of the Soviet Union pilots A. Lyapidevskiy, S. Levanevskiy, V. Molokov, N. Kamanin, M. Slepnev, M. Vodopyanov and I. Doronin—participants in the rescue of members of an Arctic expedition and the crew of the steamer "Chelyuskin" in 1934. Aviators Ya. Smushkevich, G. Kravchenko and S. Gritsevets were first to become Twice-Honored HSU's.

The 1930's were a time of rapid development of Soviet aviation. Our pilots set over a third of all world records in our own aircraft. The planet applauded the flights of the crews of V. Chkalov, M. Gromov and V. Kokkinaki. Red-starred wings were gathering force.

The Great Patriotic War approached our country like a black storm-cloud. This was the most severe test of the vitality of our entire social order. The Communist Party's call to do everything for victory over the hated enemy sounded the alarm. At this difficult time the moral and moral-combat qualities of Soviet citizens—love for the Motherland, allegiance to the cause of the party and people, courage, valor, staunchness, and a

burning hatred for the aggressor—were displayed to the full extent. When the flame of war broke out on our soil Soviet pilots met the fascist buzzards worthily.

Placed on a wartime footing, the socialist economy gave the front everything necessary for victory under unbelievably difficult conditions. The invisible, persistent duel of design thinking also did not cease for a moment. Our aviation won strategic air supremacy as early as the summer of 1943. The number of aircraft participating in Soviet troop operations constantly grew from several hundred to thousands, and up to 7,500 aircraft took part in the battle of Berlin.

Soviet industry gave the front a total of over 54,000 fighters, more than 35,000 attack aircraft and around 16,000 bombers during the war years. Twenty-five new models and modifications of aircraft entered series production. Despite the rigid time deficit and unbelievable economic difficulties in which they were being created, these were first-rate aircraft which surpassed those of fascist Germany in their flying and fighting qualities.

Our piston-engine fighters could compete even with the vaunted German jet fighters. In February 1945 I and wingman D. Titarenko in La-7's intercepted an Me-262 near Frankfurt am Oder. We caught up with the fascist and destroyed him thanks to a successful calculation. The good speed qualities of the La-7 helped, but it was chiefly tactical thinking and the habit of quickly estimating the combat situation at hand and making correct decisions.

The Great Victory was the highest award for every Soviet citizen for those difficulties and deprivations which all of us united in the fraternal family of peoples endured and carried on our shoulders.

It was difficult to restore the country from the ruins, but the Soviet people, rallied about the CPSU, managed to accomplish one more miraculous exploit, this time a labor exploit. Our state grew stronger with each year and the Armed Forces, bulwark of peace and security, also gathered might together with it. We do not have the right to scorn the interests of the Motherland's defensive capability as long as forces of aggression exist.

Aviation also saw swift development in the postwar years. Jet aircraft came to replace piston-engine aircraft. This was a bright but very difficult stage in the history of Soviet aviation. Many difficulties arose in the path of mastering high speeds. More than one glorious eagle folded his wings for the sake of taking combat equipment to perfection. Among them were talented test pilots G. Bakhchivandzhi, A. Grinchik, Arnet-khan Sultan and others. Each of them was thinking about the Motherland, the inviolability of her air frontiers, and defense of the people's peaceful, creative labor. Eternal memory for people of winged destiny!

Events of the 1960's still are felt as an acute pain in the heart. Subjectivism in managing the country and its Armed Forces led to a certain extent to an undeserved depreciation of aviation's authority. Design bureaus closed, aircraft plants curtailed activities, the best minds absented themselves from work, and the oldest flight schools and honored combat regiments were disbanded. This harmed the development of domestic aviation and struck a blow against the prestige of the flying profession.

When enlightenment came we had to make up lost ground urgently, for the potential enemy was not wasting time for nothing and was constantly improving his aviation equipment. And again the human factor came to the rescue. Again the supreme dedication to their work of people wearing blue collar tabs was manifested. The consequences of mistakes which were made were successfully eliminated in compressed time periods thanks to the unbelievable efforts and great courage which they displayed.

Now air units have new missile-armed aircraft in the inventory which are the pride of our science, technology and industry. Outfitted with modern equipment, they permit the accomplishment, essentially, of any combat missions. When one is in the units he envies in a good way the present generation of sentries of the sky. But even more, one experiences pride in young lads who in their early twenties are successfully mastering this sophisticated equipment.

Meanwhile uneasiness is stirring somewhere in the depths of the soul. It is linked with a solution to those problems acutely facing the Air Forces. It is no secret that in the years of stagnation many such problems accumulated in aviation. Oversimplification, ostentation, window-dressing, and substitution of phrase-mongering for action flourished profusely imperceptibly, little by little, in the training and upbringing process. This in turn engendered a wish in some commanders to pass off what was desired as reality. The pursuit of gross indicators in training and the striving to attain them at any cost, no matter what moral nuance they bore, even eclipsed for some time moral categories long inherent to aviation such as conscientiousness, truthfulness, honesty and principle.

The attempts of some appointed persons to artificially solve the problem of flight safety led to a situation where a mania for prohibitions—a mortal enemy of the creative, thoughtful, effective training process—became widespread in aviation. On the one hand the motto "Teach the troops what is necessary in war" was repeated constantly and on the other hand various restrictions in combat training went to the units in an endless flow. An overestimation of values occurred imperceptibly. In some places people began campaigning for flight safety not by improving the flight personnel's training and perfecting the professional expertise of

ground personnel, but by introducing various cliches and simplifications to training. That is how enthusiasm, imagination and initiative gradually were trampled in aviators.

Even though these shady moments did not have a systematic character they had to be fought, but we lacked the boldness to promptly rid ourselves of the mirage of well-being and to soberly assess the state of combat readiness in Air Forces units. This happened in the early 1940's. Self-complacency led to a situation where Soviet aviation of the border districts lost around 1,200 aircraft, including 800 at airfields, on the very first day of the war. It is dangerous to forget history lessons.

The restructuring which is gathering force in units and subunits is decisively destroying the outdated, obsolete combat training methods. Fresh new views on organizing the combat-training and indoctrination process are coming to replace them. Although changes for the better still are not always occurring everywhere as quickly as we would like, they are obvious. This means forward progress continues.

Much has to be done at this turning point. We have to gather the courage to perceive and admit our mistakes and all together have to take up solving urgent problems without mutual reproaches. We can cope with these problems if we will approach the assessment of our work from the positions of demands of the 27th CPSU Congress and of the later party Central Committee plenums. Above all it is necessary to thoroughly understand the modern demands and new criteria in combat training. Then we will see more clearly just how much we have to reconsider from this new height! We have to thriftily and carefully value that which withstood the test of Army life and flying practice and which is suitable for broad adoption, and resolutely rid ourselves of everything that interferes. We have to get rid of that which is alien, superficial, and not inherent to our objectives and aspirations but which still hangs on our legs like a heavy weight and restrains our step.

On behalf of Air Forces veterans and frontline personnel I call on aviators of the new generation to take up everything accumulated by their predecessors over the path that has been covered, transform this heritage for present-day affairs, and boldly go with it through restructuring to higher military achievements!

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6904

Flight Safety Inspector's Career Detailed
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in Russian
No 2, Feb 88 (signed to press 31 Dec 87) pp 12-13

[Article by Col A. Dmitrichenkov: "Trace in the Sky"]

[Text] The fighter-interceptor flies high up in the sky like a silvery arrow, leaving behind a snow-white trace. You

look at this "signature" and admire it, for there at the boundary of the stratosphere is a person and that is his trace.

"What in your view is the priority of the flying profession?" I asked Col N. Gostev, Honored Military Pilot of the USSR.

Nikolay Vasilyevich recently returned from a flight, but he was still entirely there in the sky. Thickset with a solid build, he stood with feet planted wide apart and face lit up with inspiration. He gave the impression that he had just finished reading favorite poems and could in no way part with their poetic images. My question seemingly brought Nikolay Vasilyevich "down to the ground" again. He removed his protective helmet and helmet liner deliberately and repeated my question with interest:

"Priority?" And he immediately began speaking hesitantly as if checking each word. "In my opinion it lies in the fact that no other profession places people with such fairness as the flying profession. Nothing will help here if you yourself are unable to work properly, work day and night in the air and on the ground. A person has to be bold always, composed always, ready for flying always." He thought a bit and added: "A special calling is required here."

Yes, the work to which Nikolay Vasilyevich Gostev had devoted the greater part of his life had become for him an emotional and physical need. In it the officer found what he had dreamed about long ago: difficult work verging on risk, and genuine romance. Flying for him is happiness.

Col Gostev's military work has been recognized with high state awards: Order of Red Star, Order "For Service to the Motherland in the USSR Armed Forces" 3d Class, and "Honored Military Pilot USSR" emblem. Nikolay Vasilyevich's service record contains more than 3,000 flying hours and 10 types of aircraft mastered. It is said that figures are dry, but these sound impressive and give a visible picture of their real essence.

Gostev felt something was wrong as he attacked the practice airborne target: the fighter vigorously went into a climb apart from his own will, then did a wing-over and rushed toward the ground. It seemed there was no longer any strength to take it out of this condition. The g-load pressed the pilot to the back of his seat. He couldn't catch his breath. He couldn't move his feet. What could he do? He had only seconds for reflection. He had to switch off the booster immediately, but it was impossible to move his hand from the engine control throttle. Overcoming the g-load's tenacious weight, the pilot switched off the booster. He thought about ejecting, but began doing something quite different: in a wing-over position and at a dive angle of around 60 degrees, with

the efforts of both hands and with clenched teeth he executed a half-roll and took the aircraft out of the dive just above the very pine tops.

On the ground specialists determined that pressure had "forced out" of the hydraulic system through a small, barely noticeable hole in the line.

The test of the sky. That happened to Nikolay Vasilyevich more than once during duty in air units, but the pilot always came out the winner. Once he was asked whether or not it is terrifying in such instances, and Gostev responded:

"Probably it is. But believe me, there in the sky there is no time to think about this. And on the ground after the flight there is usually no time for emotion: people are waiting for analysis and suggestions from you. Only later comes the awareness that you risked your life."

Many are surprised at how energetic Gostev is! But they shouldn't be surprised. He cannot live and work at half-intensity or half-strength. He deals with everything. If this is so, he also needs more energy.

Young pilots often ask Gostev how the high flight proficiency came to him. Here too one cannot answer with a single word. As a rule, however, Nikolay Vasilyevich tries to be brief. He invariably stresses: "You have to prepare for each flight as if for your own wedding: thoroughly and happily." At one time he was told this by Hero of the Soviet Union test pilot A. Fedotov, who is well-known in the country. These simple words are imprinted in each person's heart, they are retained in memory and, most important, they prompt action.

Nikolay Vasilyevich remembers his first steps into the sky to this day. He remembers school chum Genka Tarasov running up to him and blurting out on the move:

"Kolka, I came for you. Join the air club!"

It was he who attuned Gostev for difficult work in the sky.

"You are a first-category gymnast," said Gennadiy, trying to persuade him. "And it is the same in gymnastics as in flying. A sideways somersault is like a half-roll, a somersault with body stretched is like a loop, and a fixed soft landing on the carpet is like a landing."

And he persuaded Nikolay.

The first flight. It has been preserved in memory down to the smallest detail: how clear and quiet the day was, how the Yak-18 lifted off the runway, and how uncommonly beautiful the Earth was revealed from on high. The instructor's soft baritone still seemed to sound in his ears:

"Good lad, Kolya! A clean flight."

Gostev returned on foot from the airfield to the suburban Moscow Tayninka Station. The path led first across the field and then turned into the bushes. The edges were overgrown with luxuriant willow-herbs up to the knees. It seemed to Nikolay that he was not going along the ground, but along a boundless lilac carpet divided down the middle by an even seam leading there where the Earth joined with the sky.

At home in Sokolniki he was awaited by a worried father and mother. He only stepped through the door and they asked in unison:

"Where have you been so long?"

And he told them:

"In the sky!"

"They didn't believe it right away," Gostev admitted in the conversation with me. "You're joking, son," said his father, raising his eyebrows.

For he, an infantryman, a Great Patriotic War participant, a person always busy with something, had no time to waste on something idle. And Nikolay had to tell about everything he previously had carefully concealed from his parents: classes in the air club, the flight, his dream to become a military pilot. He thought his parents would begin to talk him out of it, but they were even satisfied by his independence. Vasily Ivanovich said to his wife at that time:

"Remember this day. A pilot appeared in our ground family."

Gostev's military career took shape, as he himself expressed it, without repeat approaches for a second circle. He completed school brilliantly and was one of the first among the young pilots to be appointed flight commander. He also gave a good account of himself in other positions as well.

Once Maj Gen Avn Yu. Kulikov, chief of the USSR Ministry of Defense Aviation Flight Safety Service Directorate, said in recalling those far-off years when he commanded a squadron:

"When I learned that Gostev had been assigned to me as political deputy I could not have been more happy. How did Nikolay Vasilyevich stand out in work? By a warrior's character? Yes. By initiative? Of course. By personal example? Unquestionably. And also, I think, by talent." When I related that evaluation to Nikolay Vasilyevich he was embarrassed, but later he confirmed with satisfaction:

"Yuriy Vasilyevich and I had a good command-political duet. The squadron immediately went upward."

No matter what position he holds, Gostev always considers his first and foremost duty to be concern for high combat readiness and flight safety, and for ideological and moral improvement of people. He always gave preference to personal example in the campaign for this.

According to conditions of the upcoming training assignment, the fighters were to engage each other on a head-on course. Deputy Regimental Commander Lt Col A. Vostryakov, senior member of the group, was an experienced pilot. It was rare that anyone managed to best him in an air duel. Capt Gostev also knew this. He prepared for the flight with heightened professional pride: he had never attacked that sort of person. Vostryakov also prepared for the action no less diligently. He too had a good knowledge of the attacker's flying character.

The fight broke out immediately as soon as the fighters gained the given altitude. One banked turn followed another. Soon Gostev realized that luck was on his side, but the "enemy" did not wish to concede victory. The latter immediately executed a vertical maneuver into the sun, although this was not supposed to be done in practice combat. Even that maneuver did not confuse Gostev. He guessed the plan immediately. If he tried to keep up with the "enemy" it was easy to lose him from view, but if...

He prudently withdrew to one side, continuing to observe the target. Gostev's cunning succeeded on the descending part of the loop. The attack was irresistible. When he reported to Vostryakov: "Completed work. I am to the right," Vostryakov was clearly surprised and chagrined. But still the captain's success pleased the commander: a genuine warrior!

I recall well the time when Nikolay Vasilyevich headed an air regiment political department. A lot of trouble fell to his lot at that time. The personnel both had to fly and settle in. And to whom do the people go? To the political department chief. They go both with joy and with grief, entrusting their innermost thoughts, because they know that Gostev will help and reason things out. He would go first to the airfield and then to the quartermaster people with their troubles. That is how he was "gyrating."

Gostev loves people deeply and sincerely. He values sensible people but also doesn't shun those with whom he has trouble or who for some reason have stumbled in life. He reasons as follows: there is something bad in each person, even the best person, and something good even in the worst. Everything is decided by proportions: more of something and less of something else.

Yes, flying expertly and performing political work in a regiment is within the ability only of a talented pilot and talented political officer. Nikolay Vasilyevich fully succeeded in both.

This was at a time when Gostev was serving in the Central Group of Forces. There was an important flight section ahead: taking tests for a first class rating. Could this event really get by without the regiment's senior political officer?

Seven fighter-interceptors took off into the night sky at the fixed time one after the other. Gostev first. When they took off weather conditions were normal, but suddenly the weather began to deteriorate sharply. The command came from the ground:

"Abort mission!"

One of the aircraft which was closest to the airfield immediately landed. Then it was Gostev's turn, but he did not rush. He realized that the runway would be quite difficult to distinguish from second to second. A night landing in adverse weather conditions is a serious test even for well trained combat pilots, but the pilots now in the air did not have that experience. Nikolay Vasilyevich could sense their anxiety just from the radio traffic. Therefore any delay in the landing could end up in irreparable disaster.

Gostev reported his fuel remainder to the flight operations officer. Those on the ground understood his intent: the political department chief had given up his place on the runway heading to others.

Taking up a favorable altitude and choosing the most economic power setting, Gostev flew the fighter confidently and coolly. When he finally received the okay for himself he realized that now he could not make a mistake. The signal lights were "shouting" about the emergency fuel remainder.

Gostev landed successfully. It could not have been otherwise, for he calculated, weighed and measured everything. He landed, but no longer was able to taxi to the hardstand: fuel in the tanks had run out.

How does authority come to a person? When I asked Nikolay Vasilyevich about this, he responded confidently and precisely as was his wont:

"A person has to take more on himself. Think less about yourself. The important thing is that those next to you feel themselves to be stronger and more confident!"

Flight Safety Inspector Col N. Gostev has many concerns. The more labor he puts into his job, the more experience and skills he himself acquires.

Gostev is a flying inspector. He arranges his work by relying above all on knowledge, professional competence and initiative. Flight safety is a concept that for him has been gained through much suffering, one that is genuinely elevated to the rank of a state mission equivalent to combat readiness itself.

Nikolay Vasilyevich is well known in many air garrisons. His objectivity, principle and inspector's "diplomacy" have earned him the general recognition and respect of aviators.

Through Gostev's initiative, documents on flight operations spell out the procedure for using ground radio altimeters for monitoring flight altitude on the landing approach. He is one of the authors of a document addressing air regiment commanders on questions of flight safety. And there are so many other daily good deeds to his credit!

Now, with restructuring under way across a broad front in units and subunits, Gostev believes that his place too is there. It is under those conditions that he is most needed, that he can effectively influence an improvement in flight operations, and that he can struggle in the interests of combat readiness and flight safety.

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6904

Air Regiment Officers on Importance of Alert Duty

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No 2, Feb 88 (signed to press 31 Dec 87) pp 16-17

[Interview with squadron commander Guards Lieutenant Colonel A. Mozgovoy, unit party committee member Guards Major V. Gelmich, and squadron political officer Guards Major S. Ganichev by AVIATSIYA I KOSMONAVTIKA correspondent Colonel V. Obukhov: "In Going on Alert Duty"]

[Text] Each day at the prescribed time aircraft crews in this guards fighter regiment go on alert duty to guard the Motherland's air frontiers. The aviators take this mission to be an order of the party and people requiring them to have supreme vigilance and proficiency, enormous exertion of moral and physical effort, and responsibility for ensuring the homeland's security.

AVIATSIYA I KOSMONAVTIKA correspondent Colonel V. Obukhov met with squadron commander Guards Lt Colonel A. Mozgovoy, unit party committee member Guards Major V. Gelmich, and squadron political officer Guards Major S. Ganichev and asked them to tell how countrymen were performing alert duty on the threshold of the 70th anniversary of the Soviet Armed Forces. We give them the floor.

[Guards Lt Colonel A. Mozgovoy]: The primary mission facing every duty crew is to have high combat readiness, constant vigilance, and the ability to engage a strong, crafty, technically equipped air enemy at the first signal and disrupt his plan. Successful fulfillment of this mission is ensured by the ideological conditioning, high

moral-political and fighting qualities, faultless professional training, discretion, and resourcefulness of aviators and constant combat readiness of aviation equipment and on-board armament.

Officers Ganichev, Zakharov, Totskiy, Kurilenkov, Shaposhnikov and other pilots and technicians as well as specialists of communications, RTO [electronic support] and aviation rear subunits vigilantly stand alert duty in our guards regiment. Each time they take up the post in the most important sector of defense, they honestly and conscientiously stand a responsible watch to guard our Motherland's air borders.

For example, the duty crews headed by 1st Class military pilots Guards Majors Ganichev and Zakharov distinguished themselves recently. Events that day unfolded as follows.

The aviators received the order to be ready to intercept an airborne target at a given line. Meanwhile a representative of higher headquarters was monitoring the time needed to perform the difficult assignment. Guards majors Ganichev and Zakharov coped with their duties successfully. This was the result of great proficiency and increased professional training on the part of pilots, technicians and mechanics of the duty crews.

Then party member Ganichev was assigned the mission of detecting and intercepting a small target proceeding to the defended installation at extremely low altitude. The pilot took off without delay. After take-off and after receiving the order from the CP he rushed to close with the "intruder."

Conditions of the intercept were so difficult that the pilot was required to squeeze everything out of the aviation system of which it was capable. The target was small and interference was so great that it took an enormous amount of work to detect the "enemy."

Nevertheless Sergey Yuryevich oriented himself quickly and executed a prudent and timely maneuver to close with the target. After this he began a search at the given line, making active and competent use of on-board radar equipment. On receiving information from the combat control officer, Ganichev closed with the "intruder." The altitude, g-loads and mental stress were making themselves known, but his moral attunement for victory was high and all the fourth-generation fighter's on-board systems were functioning excellently. Great credit for this goes to Aircraft Technician Guards Senior Lieutenant Molofeyev and other aviation specialists.

Meanwhile a heading update came from the ground. The pilot reacted to it at once and immediately caught sight of a rather weak blip in the upper part of the screen. He reported this to the CP at once. After this he turned the fighter slightly, executed the intercept of the check target,

"launched" a missile and disengaged from the attack. Victory came to Ganichev through a great exertion of effort. Good air training and discretion also told.

The success of our foremost aviators is natural. Pilots and technicians in the squadrons where they serve have a high class rating. They have mastered flights in fighters of the latest generation well. They have tested the technical and tactical flying characteristics of the aircraft more than once in LTU [tactical flying exercises] and while performing live firing at the a.r range. It is noteworthy that both young pilots and technicians learn to act skillfully under conditions of employment of modern kinds of aviation weapons. They do everything in a way that is necessary in a real combat situation.

What is the basis of our aviators' successes? It lies above all in their conscientious and skillfully organized training, their strict compliance with regulations and guidance documents, firm discipline, and an imaginative approach to performing their duties.

For example, things are going well for personnel of the maintenance group headed by Guards Capt Naryshkin. The qualification of master has been conferred on him. In preparing equipment for alert duty, group specialists pay special attention to punctual fulfillment of requirements of the Unified Maintenance Regulation and other documents.

It is because of well arranged operation-by-operation monitoring and cross-monitoring that instances of a violation of technological discipline and carelessness in maintenance of aviation equipment have been eliminated here. In addition, the guardsmen succeeded in considerably shortening time periods for servicing on-board systems. For example, while previously a mechanic often would take a long time in troubleshooting electronic equipment, now he does this considerably faster. He is helped by a technology developed in the group which characterizes the specific malfunction which appeared in a particular assembly and stage.

The group where Guards Senior Lieutenant Afonin serves concluded after long reflection that almost the same amount of time is needed for monitoring serviceability of aviation equipment of an aircraft assigned for alert duty as goes for checking radiotechnical systems. They consulted and decided to put specialists of two groups together into one group and put radio equipment, electrical equipment and armament specialists into another group. That job organization permitted conducting a cross-inspection of two aircraft simultaneously in two flows. Labor productivity considerably increased as a result and, most important, the quality of technical operations improved.

In displaying constant concern for training courageous and skilled combat pilots capable of taking off at any minute and successfully accomplishing the most difficult mission, our subunit commanders organized the training

process imaginatively and strove to achieve a situation where every aviator proceeds confidently to new milestones of combat proficiency and performs alert duty vigilantly at the airfield.

[Guards Major V. Gel'mich]: Speaking of the quality of performing alert duty, I would like to emphasize the following point. Each of us pilots will be able to take off promptly and accomplish the assigned mission successfully only if the aircraft and its armament are in exemplary condition. It must be noted that guards lieutenants Berezhnoy, Tsibulko, Brig and other technicians prepare aircraft for duty diligently.

But the content of the entire set of resources intended for this purpose is a subject of constant concern not only of technicians and junior aviation specialists, but also of every pilot going on alert duty. The latter is obligated to inspect and accept the aircraft in a timely manner and be sure of the serviceability and assured operation of all on-board systems. The crew commander should be exceptionally principled and demanding in these matters. Therefore our squadron aviators do not permit the slightest deviations from requirements of documents regulating flight operations.

The dialectics of development of modern aviation equipment is such that the broader the range of an aircraft's application, the more complex are its systems and the greater importance its competent maintenance assumes. Under conditions of the growing reliability of aviation equipment, the information character of its servicing becomes predominant.

As a matter of fact, one can be sure that all systems and equipment of a tactical complex are serviceable and ready for duty only from information obtained as a result of constant monitoring of a large number of parameters when its condition is being determined. We decided to alter this labor-intensive process somewhat. We began to adhere more often to planned-preventive preparation with an expanded work volume. It can be said that the aviators use the following method actively: they check the status of systems more rarely, but do so more thoroughly and effectively. This compensation is based on obtaining more objective information about the technical condition of equipment by including planned-preventive measures. Such monitoring is done at specially outfitted work stations with mandatory use of results of the data of monitoring-recording equipment.

An analysis of the work of IAS [aviation engineering service] personnel confirms that use of this system does not downgrade but, to the contrary, improves flight safety, which creates a reliable guarantee for normal operation of all aircraft systems and on-board equipment. The chief advantage is the steady increase in useful time. As a result subunit commanders and their aviation engineering service deputies have the opportunity of maneuvering forces and resources more freely in training aimed at improving the quality of preparing

crews to perform alert duty. There has been an increase in aviators' responsibility for preflight preparation, and training sessions with flight and engineering-technical personnel have become more effective and beneficial.

Also of no small importance is that our aircraft technician is not a narrow specialist who monitors the work of representatives of maintenance groups on his own aircraft in a formal manner. Guards lieutenants Tsibulko, Berezhnoy and others take an active part in inspections of fighter equipment systems and assemblies. Together with other specialists they check parameters, compare them with data of objective monitoring equipment, and comprehensively analyze the information received.

Many such examples can be given. This is the result of extensive work by our commanders and their aviation engineering service deputies. In the process of restructuring they managed to activate new reserves uncovered in the course of organizing labor and using scientific methods of servicing aviation equipment. But we are not satisfied with everything. There still are many unused capabilities that have to be uncovered more boldly and effectively in the interests of improving the combat training of flight crews.

[Guards Major S. Ganichev]: Performance of alert duty by air crews is performance of a combat mission of great state importance. Party and Komsomol organizations play an important role in unfolding the campaign for improving aviators' vigilance, decisiveness and initiative. Propaganda of the foremost personnel's experience and concern for the aviators' ideological conditioning is the principal direction in their day-to-day activities. The fact is that only a highly aware serviceman masters the secrets of combat proficiency more successfully. This is why party members Popov, Babkin, Romanov, Dyatlov, Zakharov and other activists devote much attention to increasing the political awareness and ideological conviction of the personnel of duty crews and developing high moral and combat qualities in servicemen in preparing to go on alert duty and during such duty.

In the period of preparation for performing alert duty we direct party-political work toward a detailed explanation of upcoming missions to aviators and toward propaganda and adoption of experience of the best pilots, engineers, technicians and mechanics. For this we make extensive use of briefings, individual and group talks, special bulletins, and photo newspapers. Squadron commanders, their deputies, and other party member managers systematically talk with the servicemen, particularly about experience of effective use of the on-board radar sight in intercepting targets in the clouds, at low altitudes, and when attacking an air enemy at night.

In organizing indoctrinational work with aviators on the eve of and in the period of performing alert duty, squadron commanders, political officers and party activists try to ensure that it is varied in form, current in content, meets demands of today's restructuring and

acceleration, covers all personnel with its influence, and helps servicemen completely clarify the meaning and content of the combat mission. Officer managers remind aviators that not only is the minute valuable for duty crews, but even every second. They stress the need to be ready at any moment to stop a violation of our country's air space by foreign aircraft.

Squadron commanders systematically monitor the course of alert duty, regularly summarize results, and recognize the best personnel.

To improve the personnel's technical and specialized knowledge we arrange contests for best preparation of equipment and armament for alert duty, and quizzes on a knowledge of the probable enemy's air attack weapons. The party committee has a great role to play here. Its members actively take part in conducting military-theoretical and technical conferences, seminars and interviews, and in generalizing and disseminating the experience of tactical employment of modern fighters. Party members organize meetings with leading specialists for the personnel and a discussion of articles on S&T topics.

We recently held an expanded session of the party committee discussing the committee's work to ensure party members' exemplariness in strict fulfillment of USSR Minister of Defense requirements concerning the organization and performance of alert duty. The regimental commander gave a briefing. Statements by Command Post Chief Guards Capt Antipov, Deputy Commander for Political Affairs of the obato [Separate Flightline Maintenance Battalion] Major Konkin, and Deputy Regimental Commander for Aviation Engineering Service Guards Lt Colonel Romanov were specific and filled with practical content. Deputy Squadron Commander Guards Major Gelmich spoke in detail about ways for further increasing the teamwork of flight and technical personnel in the duty flight.

We began to work in a more thoughtful manner on preparing the party and Komsomol aktiv for performing alert duty. Purposeful political indoctrination work of squadron party buros also facilitates this to no small extent. They regularly examine questions of quality performance of alert duty. The practice of this work includes hearing accounts from party members about personal example in performing an important state mission and in effective use of entrusted equipment and armament.

Taking into account the great responsibility placed on aviators in the period of performing alert duty, the regimental command element and all party members attach special significance to party-political work aimed at maintaining firm discipline among the crews and high combat readiness of duty forces and resources.

The entire tenor of duty, from the ceremonial ritual to summation of duty results, greatly contributes to instilling high execution. In monitoring the personnel's performance of their duties we also do not lose sight of questions of the quality of maintenance and tactical use of aviation equipment. We give special attention to regulation relationships and exemplary order in the duty subunit.

In talks with aviators we stress without fail that the time period for executing orders on alert duty is measured in seconds, and that even a slight violation of regulation requirements can threaten performance of a combat mission.

Each of our officers attempts to do everything to see that the squadrons have as many well trained flight crews as possible capable of performing duty vigilantly and precisely and functioning confidently and daringly in a difficult tactical and weather situation.

The guards aviators are greeting the glorious 70th anniversary of the valorous Soviet Armed Forces with great patriotic enthusiasm. They are striving to augment the guards glory of the native regiment by conscientious military labor and to keep its combat readiness at the highest level while worthily multiplying heroic traditions of countrymen of older generations.

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Discourse on Development of Space to Benefit Life on Earth

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in Russian

No 2, Feb 88 (signed to press 31 Dec 87) pp 18-19

[Article by Twice Hero of the Soviet Union, USSR Pilot-Cosmonaut V. Sevastyanov, Candidate of Historical Sciences V. Pryakhin: "Decisions of the XXVII Congress of the CPSU—Into Life! New Thinking for the Space Age"]

[Text] In all historic epochs man had a regular and natural desire to look into the future and, on mentally discovering imminent danger, to eliminate it ahead of time. Resolutions of the 27th CPSU Congress are an example of such preemptive political thinking with respect to an unprecedented danger of a new order of magnitude which mankind encountered in the latter half of the 20th century—the real danger of nuclear self-destruction.

Colossal stores of deadly weapons now have accumulated in the world. Every minute \$1.5 million are spent to create physical means of murdering people. "We cannot take 'No' as an answer to the question: Is mankind to be or not to be? We say that social progress and the life of civilization must and will continue." These

words from the report by CPSU Central Committee General Secretary, Comrade M. S. Gorbachev to the 27th party congress are the quintessence of all mankind's political experience in the stage of wide adoption and interpretation of achievements of the S&T revolution.

The new thinking is a quality leap in social awareness and in the entire set of political, legal, moral, religious, esthetic and philosophical views and ideas in which people's attitudes toward reality are realized and evaluated. This leap is dictated by the entire preceding development and improvement of forms both in relations among people and in man's interaction with nature.

The system of new thinking has its core—the philosophy of shaping a safe world in the nuclear-space era; and it has a political program—an all-encompassing system of international security, the basic provisions of which are fixed in 27th CPSU Congress documents. It has its aspects in production, culture, artistic creativeness, and pedagogics, which are intended to facilitate the indoctrination of a person of a non-nuclear and non-violent world.

This entire system of views and ideas rests on a powerful natural science foundation. The S&T revolution and discoveries in the fields of mathematics, physics, chemistry, molecular biology and the entire set of life sciences form that "mighty current from natural science to social science" which, according to Lenin's prophetic expression, "remained no less powerful, if not more powerful, for the 20th century."

A special place in the system of new thinking belongs to cosmonautics as a vivid manifestation of the achievements of mankind's genius in the field of science and technology. "We will try to have a cosmic view of things," was the call of our outstanding countryman K. E. Tsiolkovskiy. This call was embodied in the flight of Yuriy Gagarin, who for the first time sensed the commonality of the single human family. The discoverer of space was at the same time a unique herald of the new thinking.

Since the time of Gagarin's flight the idea of outer space as the province of mankind has been registered in dozens of multilateral governmental treaties and agreements. "The exploration and use of outer space, including the Moon and other celestial bodies," states in particular Article 1 of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, "shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind."

The idea of space as a sphere of joint and equitable activities of all countries facilitates the development of broad international cooperation in its development for the benefit of all peoples and states. The Soviet Union consistently favors such cooperation. A unification of

efforts in the exploration and peaceful use of space was included at the 27th CPSU Congress in the fundamental Bases of an All-Encompassing System of International Security. And in turn, as stated in the letter of USSR Council of Ministers Chairman, Comrade N. I. Ryzhkov addressed to UN Secretary General J. Perez de Cuellar, "the cooperation of states in space would serve as a bridge to strengthen confidence and mutual understanding among them on Earth as well."

Guided by principles approved by the international community, the Soviet Union came out within the framework of the UN with an initiative providing for implementation of a three-stage program of joint practical actions by states for the exploration and use of outer space for peaceful purposes, and providing for creation of a world space organization. The program proposed by the USSR is a call for cooperation of all states without exception. Its basis contains the profound conviction that development of widescale international cooperation in the peaceful development of space is a constructive alternative to ominous plans for spreading the arms race to space. A distinguishing feature of the Soviet program is its scale, economic saturation, and orientation toward phased implementation in specific time frames.

One of the primary problems among the modern world's global problems remains the destruction of all foundations of the modern person and his or her loss of moral criteria and reference points. The 27th CPSU Congress noted that "capitalism bears for peoples both an impoverishment of culture and erosion of spiritual values created over the centuries. Nothing elevates a person more than knowledge, but probably not in one other period of its existence did mankind experience such pressure of hypocrisy and deception as now."

Destruction of the moral "environment of human habitation" is unquestionably a complex process. At its basis is the fact of the domination of capitalist production relationships in a considerable part of the modern world. But we cannot close our eyes to the fact that dangerous "viruses" of an absence of spirituality also are penetrating our environment. The struggle against them requires the uniting of all morally healthy social forces and cooperation, including international cooperation.

Cosmonautics serves as an inexhaustible source of spiritual abundance in accomplishing this task. It is one of those material factors of the 20th century which, according to the figurative expression of Comrade M. S. Gorbachev, forces a different perception of the weight of national solutions in determining the destiny of civilization, correlation of the process of cognition, and methods of using the achievements of science, time itself, and space.

Each step of mankind in developing space requires a multitude of new scientific discoveries, bold technical solutions, and original finds in the field of production technology, which in turn are sprouts of new kinds of

equipment and entire production cycles directly on Earth. The Soviet Union's peaceful development of space serves as a graphic example of how science used for mankind's welfare becomes a powerful stimulus of progress in mankind's interests. The miniaturization of electronics being accomplished during work in space by virtue of the insistent need for economizing on grams of weight and cubic centimeters of space also is passing into the earthly national economy, raising the level of its outfitting and taking it to new milestones.

The modern spaceship is a focus of technical innovations, each of which represents a specific prototype of the material-technical base of the future. This includes new materials, new electronics reduced in volume, an original solution to such tasks as the recycling of water condensate, and much more.

Cosmonautics holds a special place among the various spheres of endeavor. Feedback between man's practical affairs and the ethical and esthetic development of the world around us is manifested in it in a most direct, immediate form.

While paying a tribute of respect to man's heroic achievements on Earth, we note that by virtue of the special social significance of space the seemingly most ordinary acts of labor activity aboard a spacecraft acquire a social resonance that is many times greater. Cosmonautics intensifies and newly personifies as it were the traditional virtues of the human personality.

It is by virtue of the special significance of space for millions of people that the words of space trailblazer Yu. Gagarin sounded so persuasive: "Our planet is superb, but too crowded for fights; we have to live on it in friendship." This is why the planet's peoples followed the Soyuz-Apollo joint space experiment not only with interest, but also with hope, seeing in the space handshake of Soviet and American cosmonauts a bright, tangible symbol of cooperation of two countries of opposite sociopolitical systems.

Thanks to the force of its social resonance, cosmonautics also serves as a unique contrasting screen for displaying a monstrous contradiction of the modern era—between the force of science and the reality of nuclear self-destruction. It is in the aspect of limitless capabilities of the peaceful use of cosmonautics that prospects for militarization of outer space and for "star wars" today appear odious and ominous. Adherents of placing large-scale ABM systems in space argue their position by saying that these systems allegedly will permit stabilizing the world strategic situation, will reduce the risk of nuclear catastrophe, and in case it arises will shift combat actions into outer space, thus preserving Earth and its inhabitants.

These are opinions that are dangerous in their naivete. In reality creation of ABM defense systems would sharply increase the risk of the onset of a thermonuclear catastrophe. Under conditions of a reduction in time for

making political decisions, a simple accident on one of the surveillance satellites erroneously taken as a sanctioned action by a potential enemy can place the world on the brink of global war without delay. That is the opinion of a number of authoritative specialists expressed immediately after proclamation of the "star wars" program. Prominent American physicist and member of the Committee of Concerned Scientists R. Garwin declared at one time: "I believe that this leads to war in space; not as an alternative to war on Earth, however, but as the prelude to war on Earth." Notable words!

The catastrophe of the American space shuttle in early 1986 serves as a graphic illustration of Garwin's correctness. The personal tragedy of the Challenger crew can easily become the tragedy of mankind if the efforts of scientists, cosmonauts, engineers and technicians are directed toward creating space armaments and deploying attack weapons which allegedly are intended for defensive purposes but which always can be used for delivering a first strike.

Magellan's around-the-world journey which lasted three years staggered contemporaries with the immensity of expanses of the ocean and inhabited land. The 1 hour and 48 minutes of Yuriy Gagarin's flight made the Earth of mankind the world of every person. The 73 seconds of the fatal flight of the Challenger clearly showed earthlings the full fragility of equipment they create and the fact that the safety of their joint residence can in no way be transferred to the trust of even the most sophisticated automatic equipment.

In late 1986 fragments of the Challenger were buried in two old missile silos at the U.S. Air Force base at Cape Canaveral especially demothballed for this purpose. This caused incomprehension in some of the scientific public. Scientist and publicist G. Whitehouse proposed placing at least a portion of the fragments in aerospace museums in a number of countries as a reminder that mankind still has not mastered space technology to perfection.

This suggestion seems reasonable to us. By the way, the decision to fill up two old strategic missile launch silos with spacecraft fragments also has its symbolics.

"The idea of an all-encompassing security system," states Comrade M. S. Gorbachev's article "Reality and Guarantees of a Safe World," "is the initial draft of a possible new arrangement of life in our common planetary house. In other words, it is a pass to the future, where the security of all is a guarantee of the security of each person."

Peaceful cosmonautics is a unique sphere of working out and rooting the rules of society in general. It was not by chance that one of the first documents on cooperation between the USSR and United States concluded after the now historic joint declaration of 21 November 1985 was the agreement on cooperation in exploration and use of

outer space for peaceful purposes signed 15 April 1987 by USSR Minister of Foreign Affairs Comrade E. A. Shevardnadze and U.S. Secretary of State G. Shultz in Moscow.

The agreement contains 16 specific projects for bilateral cooperation in the area of exploration of the solar system, space astronomy and astrophysics, Earth science, physics of Sun-Earth relationships, and space biology and medicine.

At the December 1987 Soviet-American summit meeting cooperation in space again was given fixed attention. A flight to Mars as well as other bilateral issues (climate, preservation of atmospheric ozone, medicine, trade) were categorized in Washington as problems which could comprise the basis of constructive cooperation between the two countries.

Peaceful cosmonautics is oriented on man's earthly needs. According to specialists' estimates, the international community spent around \$500 billion on its needs in the first 30 years of the space era. Because of these funds the S&T revolution in space also is becoming a reality on Earth and is being embodied in thousands on thousands of useful things surrounding man in daily life. And exactly as the sophisticated miniaturized computer aboard a spacecraft is realized in daily life in dozens of household appliances, in the sphere of ideology searches for intelligent life in the depths of the universe help man acquire a meaning of life on Earth under the complex conditions of the nuclear space era.

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6904

Cosmonaut Romanenko's Biography, Work in Space

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[Article by Col V. Gorkov: "Toward the 70th Anniversary of the USSR Armed Forces: Fixation"]

[Text] The profession of cosmonaut was born before our eyes. Looking into the faces of the trailblazers of space, people tried to discover in their appearance some kind of uncommon features; not having found anything special, they were surprised. Later their work became more and more familiar and understandable as time went by. Today the world has a little more than 200 cosmonauts, but without them mankind would have been different. We would have become poorer not only in knowledge, but also spiritually.

Ten years ago a press conference was held for Soviet and foreign journalists in the assembly hall of Moscow State University on occasion of the longest space expedition by the crew of Yu. Romanenko and G. Grechko. At that

time Georgiy Mikhaylovich still was the person who had lived in space longest, having spent 126 days there. Years went by and again the pages of newspapers and journals were filled with announcements about new achievements of Soviet cosmonautics. Today Romanenko has become the person who has spent the longest time in space overall—430 days are his cumulative time in space.

Yuriy was born 1 August 1944. His childhood was spent in a military environment in the North. His father was a navyman who commanded a destroyer and his mother was a military physician. Yuriy's father remains for him the model of an officer even today, but in childhood years his father was truly an idol for Yuriy. This is why the sea and all interests connected with it became his first love. The memory of this, of his father, and of the Northern Fleet became the cosmonaut's callsign, "Taymyr."

The family moved to Kaliningrad after his father was released to the reserve, and here fate brought Yuriy together with former pilot Aleksandr Aleksandrovich Malinovskiy. Malinovskiy would tell the children about combat traditions of aviators, build model aircraft with them enthusiastically, and instil in them a love for aviation. He won Yuriy's heart with his dedication to his beloved work and under his influence the youth decided to become a pilot.

After finishing school the majority of kids are faced with the choice of where to go further. Some try to find a place closer to home, others give in to their parents' will, and still others decide their fate themselves.

Having a school-leaving certificate with no threes and good health, Romanenko could have entered military school immediately, but he reasoned otherwise. The image of Pavka Korchagin, his beloved hero, stood before him and Yuriy decided to test himself and the strength of his interest.

He became a worker: he was a concrete worker, then a fitter. No, these were not days lived aimlessly. The lad felt himself to be an independent person, came to know the romance of the worker's labor, and tempered his will. Now all doubts were behind him and in 1962 Romanenko entered the Chernigov Higher Military Aviation School for Pilots. Four years later he completed it with honors, receiving a pilot-engineer's diploma and assignment as an instructor pilot.

Fate scattered classmates across the country. We spoke with one of them, Lt Col G. Drugoveyko, who studied with Yuriy in the same classroom section for four years.

"He came to school as a dreamer and romantic," Grigoriy Timofeyevich began his story, "but all of us were that then. Yuriy entered school to learn to fly. The others also entered for this same reason, but he was dreaming of

more. In the early 1960's the very name of the 'pilot-engineer' profession was not quite clear. Some even joked that it meant pilot minus engineer. Yuriy did not recognize these minuses. He conscientiously made himself into a pilot possessing a serious engineering base. Of course, our classmate was not alone in that attitude toward science, but there were few who could compare with him in efficiency and determination. By the moment he finished school Romanenko probably had become the most educated of us all.

"There was enough of Yuriy to go around for everything. Where he was, it was always lively. There would be the sound of a guitar, a song would pour forth, ideas would originate for New Year's gatherings and KVN [Club of the Merry and Resourceful] scripts, and youthful fantasy would seethe. A creative quest is inherent in young people, but Yuriy did not simply display his abilities; he developed them. Soon he had textbooks on drawing and he would spend every free minute learning artistic skill. That is how it was with foreign language as well. We quietly parted with foreign languages as soon as we took the exam, but Yuriy continued to improve his knowledge of English. It was as if he sensed that this language would come in handy for him for the Soyuz-Apollo program.

"Even before school Romanenko took up sports seriously: underwater swimming, boxing, ice-skating, skiing. But after linking his destiny with aviation he revised his sports program and kept that which was useful for the profession.

"I would also like to mention one other thing. Today from the standpoint of past years I would note what is in my view his principal and most important merit—the ability to tell you the truth to your face."

Yes, life is a struggle and not everything always goes smoothly in it. At times one mistake sets back attainment of a goal for many years. Yuriy learned this lesson of life early. On finishing school he often thought about his future. One will hardly find a young person who does not wish to prove himself and stand out in something. It is all a matter of how to find this path. His favorite pilots also were instructors at one time, but then became testers. What was he to do?

A fortunate instance helped Yuriy meet G. Titov. In 1970 German Stepanovich was selecting candidates for the Cosmonaut Training Center. He found one, Vladimir Dzhanibekov, at the Yeysk Higher Military Aviation School for Pilots and another, Yuriy Romanenko, was insistently recommended to him by the chief of the Chernigov School.

German Stepanovich recalls: "Our new department at that time needed technically competent instructor pilots. Before meeting the candidates we carefully went over their personal files with specialists. Yuriy Romanenko met all requirements and we invited him in for a talk. I

remember well how the stately officer entered the room. One could sense the energy from his appearance. There were merry sparks and youthful enthusiasm in his eyes.

"I realized during the conversation that this was the very person whom we were seeking."

That is how Yuriy Romanenko's path to the stars began. The "trying on" of the cosmonaut profession occurred in the Soyuz-Apollo program for him as it did for Dzhanibekov, and two and a half years later he and Grechko set off on a flight of record duration.

People say that in happy families spouses resemble each other and in time understand each other with hardly a word spoken. Space "families" are no exception, the only difference being that cosmonauts are assigned to the crew. This is why compatibility, especially on lengthy flights, assumes paramount importance inasmuch as "divorce" is impossible in space. The fact is, however, that occasionally very little time remains for "lapping." That was the case, for example, with A. Berezhovoy and V. Lebedev. Then both cosmonauts pledged to work well together. Romanenko and A. Aleksandrov were in quite unique conditions on the last flight. Their work began right aboard the Mir orbital complex without any "lapping." Today we can say that educated, intellectual, intelligent people can understand each other in any situation. For them the interests of the cause they serve are above all else.

In looking at Grechko, Dzhanibekov, Romanenko and others, one automatically ponders the reason for their space longevity. Continuous improvement is a feature of the cosmonaut profession. Yuriy Romanenko believes that it is impossible to stop at some one level of knowledge and skills; one has to raise it all the while or fall hopelessly behind. The answer to the question asked obviously lies here.

"Romanenko has a very valuable ability: to orient himself precisely in a difficult situation and make a decision quickly," says USSR Pilot-Cosmonaut A. Laveykin, as if confirming this. "An unpleasant event happened to me on a flight. During an exit into open space I had just leaned out of the hatch and grabbed the handle with a glove when there was a sudden pop and pressure began falling in the space suit. I thought the glove lock had come open and informed the TsUP [Flight Control Center]. Vladimir Solovyev immediately recommended switching on emergency space suit pressurization. The pressure stabilized for a second or two and then began to drop again. My heart was pounding and then it seemed some other unknown force would suddenly unfold me. I heard a click and pressure began to rise. It turned out that Yura guessed that during my exit I hooked the space suit pressure adjustment knob on the hatch protective ring, and he put it in place. I learned a great deal from him during our acquaintance. We became very good friends in flight and now I impatiently await a meeting with Yuriy."

In those same November days I had occasion to chat with Col Med Serv I. Tarasov, chief physician of the Cosmonaut Training Center imeni Yu. A. Gagarin.

"After such a lengthy flight, for which there has not yet been an equal in duration, apparently it will be difficult for Yuriy Romanenko to shift to an earthly way of life?" I asked him.

"I will tell you confidentially that we are more optimistic than ten years ago when he returned from the 96-day flight, and there is every reason for this. First of all, Yura is not simply a good cosmonaut, but a person of high culture. After comprehending all our recommendations he not only endured in this flight, but even preserved his health and became the model for cosmonauts of succeeding expeditions. Secondly, experience shows that with the present system of prophylaxis any cosmonaut is capable of making flights lasting a half-year and retaining normal physiological condition with minimal readaptation. Thirdly, we are constantly expanding methods of fighting weightlessness. In particular, on the basis of hematological research there was a correction of hemopoiesis and the program methodology of a physical load using the 'Fiziotest' instrument was used on this flight.

"What is the essence of this research? As we know, the blood grows old every 3-4 months; red blood cells live only 120-140 days. On Earth there is a very well defined magnetic field, rhythmic nature of illumination, and gravitation. Man has adapted to these conditions and does not even think about how blood replacement occurs in him. Conditions change in space. A person's blood volume decreases, the form and magnitude of regular blood elements—basic carriers of life—change, and a reduced physical load on the locomotor system causes a redistribution of tension in vessels (arteries, veins). All this leads to unfavorable changes in the cosmonaut's body. How can this process be slowed? New studies are called upon to give an answer to this question.

"One Progress cargo transport craft delivered a microscope to the Mir orbital complex for analyzing cosmonaut blood smears. Changes occurring in the body are judged from them. Physical culture remains the basic means for preventing negative phenomena. A loading program is prescribed using the 'Fiziotest' device. If a signal comes from it earlier, this means the body is not conditioned and the cosmonauts actively adjust the physical load. In addition, use of the other prophylactic means aboard eliminates the effect of weightlessness and the influence of other space flight factors."

Readers often ask in letters: "Why do we need lengthy flights?" And in the same breath: "Will man soon fly to Mars?" The fact is, if we think about it, these are links of the same chain. It is the lengthy flights in near-Earth space that provide that foundation of data which will be required for making longer flights to the planet Mars.

They naturally also will require consideration of other negative factors and additional prophylactic measures, but we have to prepare for this already today.

Let us recall that following the flight by Yu. Gagarin which lasted 108 minutes there were flights of 1, 4, 5, 18, 24, 30, 63, 96, 140, 185, 211, 237 and 326 days. According to these data one can imagine the caution with which medical personnel functioned over all 27 years, since no one precisely knows the "boundary" of man's stay in outer space, that biological barrier beyond which it is not recommended stepping.

After his return from his second space flight, when Romanenko and A. Mendez again were aboard Salyut-6, journalists asked him:

"What is better in your view: to meet comrades as a member of the main crew or to be a guest yourself?"

"In my opinion," the cosmonaut answered, "a lengthy flight still is more attractive from the professional standpoint. By proportioning the regime of work and rest it provides an opportunity for performing some kind of unplanned work and it gives greater room for the creative quest."

And again, as he did ten years ago, Yuriy Viktorovich made the longest flight. Events also repeated themselves. Aboard Salyut-6 he received the first international crew under the Interkosmos program. The Soviet-Syrian crew also was the first international crew aboard Mir.

The subject matter of research on this flight was quite diverse: astrophysics, environment study, biology, metallurgy, growing monocrystals, and geology. Readers will learn results of the work in our subsequent publications. Today, however, we can stress that the crew selflessly performed all experiments and observations right up until the final day. This indicates that man is capable not only of enduring lengthy flights, but also of carrying on varied intellectual and physical activity. Yuriy for his part confirmed his words by action. Like both flight engineers, during the flight he made a number of critical comments and recommendations for improving certain instruments, hardware, station units, and documentation for them. One other gift of the commander also was manifested. Yuriy wrote several songs and performed them himself to the accompaniment of a guitar left by Aleksandr Laveykin.

Gagarin said it excellently about the cosmonaut profession: "There is more than enough romance in the cosmonaut profession, but now everyone already knows that the road to space is not strewn with roses. Those who have taken this road are not fanatics, not robots, not little screws and cogs of a space mechanism; they are bold, determined people. Each of them has something unique and inimitable."

Yuriy Romanenko also took something unique and inimitable on this flight. No matter how difficult it was for him he firmly remembered that the cosmonaut's labor absorbs the talent of designer and scientist, expertise of the worker and operator, knowledge of the engineer, concern of the physician, and sleepless nights of the launch crews and duty shifts. He remembered and lived by his faith in victory. And it came.

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6904

Helicopter Engineer Officer's Career Detailed

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No 2, Feb 88 (signed to press 31 Dec 87) pp 28-29

[Article by Col V. Lebedev: "Heirs"]

[Text] Mikhail Malyushitskiy was born in 1957 in the small Belorussian town of Gorki situated on the picturesque banks of a river with the prosaic name Pronya. At that time his parents had no idea that their firstborn would tie his destiny with aviation, and definitely with helicopters. The time came when stern ordeals fell on their son's shoulders which thoroughly tested his moral qualities.

Mikhail's character resembled that of his father. Valentin Porfiryevich had more than enough life experience. At one time he finished an academy and later worked as senior economist at a reinforced concrete articles plant. The collective respected him. Mikhail's mother, senior nurse at the city hospital, is a well-known woman. Her heart is open to all at any moment.

That family atmosphere had a favorable effect on forming the son's character and personality.

Reflecting in his youth about what path to choose, Mikhail strove for independence. He had his own principles. He also did not turn aside the opinions of senior persons; he would listen to them carefully and weigh every word.

Back in his school years he decided to become an officer. His contemporaries Sergey Kolomeyets and Aleksandr Lezhnev also dreamed of this. Their civic awareness and patriotism took shape and grew strong on the exploits of courageous heroes of the Civil and Great Patriotic wars. A stern lot fell to Soviet Belorussia in the very difficult years of struggle against fascism. Its unsubdued people had to suffer through a great deal.

Often Mikhail and Aleksandr would participate with their school comrades in tours to places of military glory. The boys did not ignore the nameless hills where fighting had taken place, the decrepit bunkers, and trenches

overgrown with dense grass. They put fraternal graves in order and established the names of war heroes buried in them who fell on the legendary Belorussian soil.

The Young Pathfinders knew from books, movies and stories of veteran aviators that a very difficult situation took shape in the sky of Belorussia on the first day of the war. Soviet aviators fought with great intensity in repelling the fascists' surprise attack and boldly entered air combat with the enemy even when in the minority.

Mikhail remembered the names of those who distinguished themselves: Squadron Commander Sr Lt I. Drozdov, who flew five combat sorties on 22 June 1941 and destroyed two fascist aircraft; Senior Politruk A. Artemyev, who took off into the flaming sky nine times to meet the enemy and downed three enemy aircraft. He was proud of the exploits of P. Ryabtsev, A. Danilov, D. Kokorev and other valorous eagles who employed the ram in air combat. He often pondered and tried to understand the origins of their courageous acts.

It must be that in trying to equal these heroes Mikhail Malyushitskiy decided to link his destiny with the Air Forces. He prepared for this seriously, persistently mastering knowledge in school and becoming physically fit. After lessons he would hurry to classes in the radio circle, where the entertaining world of electronics opened up for him.

The youth rested his choice on the Kaliningrad Military Aviation-Technical School. On becoming a cadet he met wise and considerate officer-mentors. Lt Col K. Berzinsh won him over with his erudition and pedagogic expertise. His talks always left a deep imprint in memory. The officer possessed that pedagogic gift which had an enormous emotional effect on students, generated the cadets' great interest in studies and prompted them to deep reflection.

Mikhail Malyushitskiy was not just a leader in studies. He was also known here as a good athlete and a member of the school team. He repeatedly defended its honor in district contests and took prize places. At that time he was awarded the first sports category in handball and his photograph was placed in the "Best School Athletes" display.

Cadet Malyushitskiy had time for everything. He used each hour to broaden his military-technical and cultural horizons. He read a great deal. More than once he gave classmates meaningful reports and lectures, for which he would prepare thoroughly. He would study recommended literature attentively. He also took an active part in Komsomol work.

At his initiative Komsomol members organized the "Officer is a Heroic Profession" night, to which Armed Forces veterans, Great Patriotic War participants, and officers who had served in military aviation for many years were invited. There was a meaningful discussion

about the honor and dignity of the Soviet officer and about high moral and professional qualities of the soldier-internationalist. The evening was a success.

At that time none of its participants had an inkling that after graduation some including Mikhail Malyushitskiy would have to perform international duty in the Republic of Afghanistan, but that would be later, enormously later. Immediately after school young officers Malyushitskiy and Lezhnev received an assignment to the Syzran Higher Military Aviation School for Pilots. Mikhail was appointed to the position of maintenance group chief.

The novices were greeted cordially in the subunit, which in those years was commanded by 1st Class Military Pilot-Instructor Lt Col V. Malyshev. Maj Yu. Sgibnev was his deputy for aviation engineering service.

At one time Yuriy Ivanovich completed the Kiev Higher Military Aviation Engineering School by correspondence. A thoughtful, industrious and responsive person, he won people over by his sincerity and constant concern for them. He was respected for his high technical erudition and for keeping his word. Party Member Sgibnev also was able to demand a strict accounting for blunders in service, especially from violators of technological discipline.

On meeting the lieutenants the deputy squadron commander for aviation engineering service said:

"The crews will have to fly a great deal. Everyone has enough work to do, our brother especially, and we have to work thoroughly on the training facility. You can always count on my support."

Officer Sgibnev pronounced each word firmly and persuasively. The novices immediately realized that before them was an experienced person who knew his job and from whom there was something to borrow.

The arrival of young people in a military collective is a special event. The lieutenants sensed from the first days that they had been awaited here and were very much needed. Mikhail tried to get into the flow without wasting time. He was well trained in the professional sense, with an intelligent understanding of complex electronic equipment of the rotary-wing craft. Nevertheless, Lt Malyushitskiy understood that knowledge acquired could be lost quickly if he did not seriously engage in independent training. Therefore he set for himself the objective of becoming a 1st Class specialist in the next two or three years.

Not every person is able to achieve that goal! This requires knowledge, will, great desire, determination, purposefulness and concentration. The young officer confidently headed for the planned goal and prepared

seriously and painstakingly for each flight section. His subordinates did not permit even the slightest failures or errors in maintaining the helicopters.

Mikhail Valentinovich together with the other innovators put a great deal of effort and inspiration into re-equipping the training facility and into every bench, diagram, chart and operating model. Often it was necessary to work after flights, foregoing personal interests, but even in those busy moments no one complained of being tired. When the job was completed the skilled craftsmen heard warm words of gratitude from colleagues.

The heavy workload of officers Malyushitskiy and Lezhnev at that time still did not affect their involvement in sports. In evening hours they would continue to visit the gymnasium where they continued to improve Greco-Roman wrestling holds on the mat.

The lieutenants thus matured in overcoming difficulties, putting their energy and talent into successful accomplishment of the difficult tasks assigned by the commander. Subsequently Aleksandr Lezhnev completed the Physical Culture Institute imeni P. Lesgaft and was assigned as chief of regimental physical training and sport. Mikhail Valentinovich did not part with airfield life; he sought and found effective methods for training and indoctrinating subordinates. He tried to be closer to people, set the example in everything, and was successful in servicing equipment as well. He could conduct a class in an interesting, methodologically correct manner. He was being recognized more and more when results of training and socialist competition were summed up and he was mentioned as being a capable, promising officer. It took Malyushitskiy only a year to have the group he headed declared outstanding and soon the officer was given the 1st Class specialist rating.

Later there was an increase in social work: he was elected squadron youth leader at the Komsomol report-election meeting. Time confirmed that colleagues had not erred in their choice of secretary. He vigorously carried on inner-League work. They worked collectively. Gradually the authority of the Komsomol organization rose and it advanced to be among the best in the regiment.

Years went by. Officer Malyushitskiy began to think about a higher engineering education. Once at the airfield Mikhail Valentinovich told the deputy squadron commander for aviation engineering service about his dream.

"You have a full right to this, but you have to secure the squadron commander's support," responded Maj Sgibnev.

Yuriy Ivanovich was calm, but from the expression on his face Mikhail guessed that Sgibnev was keeping something back. Later everything was revealed. Events were

developing swiftly and, more importantly, quite unexpectedly for him. When it seemed the question of his entry into the Academy already was predetermined Mikhail Valentinovich was invited in for a chat by the general. That is when he heard:

"You will have to postpone training for now. We are proposing that you leave for the Republic of Afghanistan."

Party Member Malyushitskiy was ready for that turn in his Army life. The refresher course was not long. After a few days he was on the long-suffering land of our southern neighbor. It was troubled there.

Hardly had he managed to more or less get the picture when a command came for a combat sortie.

"I will remember it a long time," said the officer later, sharing impressions with colleagues.

The dushman had a strongpoint in a high-mountain gorge from which they were firing on our motor transport columns delivering food, drugs and other cargo to remote kishlaks. One day the helicopter personnel were informed that an Afghan subunit had begun destroying the dushman combat positions and air support was necessary. The crew of the helicopter which included Capt Malyushitskiy also took part in this operation.

Below were the mountaintops, gorges and passes from which shots could ring out at any moment. Our helicopter crews made the approach to the target on time and together with the Afghan soldiers destroyed it. Mikhail Valentinovich took off into the restless sky many times more after this. He had to perform the most varied duties—air gunner and flight aviation specialist—and restore damaged combat equipment under dushman fire.

Once a group of our aviators was replacing a helicopter tail rotor in a combat situation. From time to time the dushman would place mortar fire on the pad. Capt Malyushitskiy functioned confidently under the difficult conditions.

Later there were meetings with Afghan aviators. The exchange of foremost experience of maintaining helicopters on mountainous desert terrain benefited everyone.

The tense days of combat routine crammed with troubles, alerts and unforeseen circumstances ran one after the other. On one of those days the dushman blew up a gas line in the foothills. It was impossible to get there by motor transport and the Afghans turned to the Soviet helicopter personnel for help.

The aviators did not leave their friends in the lurch. Some time later crews of the rotary-wing craft delivered specialists to the site of the gas line damage.

Capt Malyushitskiy was awarded the Order "For Service to the Motherland in the USSR Armed Forces" 3d Class for valor and staunchness displayed in performing international duty. The very same honor was bestowed on Officer S. Kolomeyets, and two combat orders were awarded Flight Technician Capt A. Penziyev.

After returning home Mikhail Valentinovich completed the Air Engineering Academy imeni N. Ye. Zhukovskiy. He showed by his military deeds that he had not erred in choosing a profession. His parents also are happy. They are proud of the fact that their son is worthily continuing the best traditions of participants of the Civil and Great Patriotic wars and vigilantly guarding our socialist Motherland.

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6904

Helicopter Navigator's Afghanistan Duty

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No 2, Feb 88 (signed to press 31 Dec 87) pp 30-31

[Article by Col (Ret) N. Stasenko: "They Were Decorated by the Motherland: Farewell Sortie"]

[Text] The alert was so very inopportune. The helicopter personnel had just arrived for breakfast when Lieutenant Colonel A. Depresov quickly entered the flight mess, adjusting his waist-belt on the move, and quietly commanded:

"Get up! Combat sortie. We'll eat when we return."

Everyone quickly got up. Navigators and technicians moved over to their commanders. Soon the crews had assembled at the combat machines. Commanders basically asked questions and subordinates answered. It is rarely the other way around.

Helicopter navigator Senior Lieutenant A. Kramarev was just about to get into the helicopter when Depresov's heavy hand fell on his shoulder:

"Sasha, you will stay behind. Go to headquarters and fill out forms. You have flown your quota."

Tall and slender, Kramarev suddenly somehow became shorter and faded. His greenish eyes dimmed. Only now did the meaning of the squadron commander's words reach him: his friends were going into action without him. Having served his term as part of the limited contingent, he had to return home.

Today it would be his replacement who would be awaited by the Stingers and rapid-fire, heavy-caliber machineguns of the dushman concealed in the gorges like scorpions among rocks. It was not he but another navigator who would begin to plot the route to the landing

zones and support the landing of riflemen and the drop of combat gear. And it was still not known how this other person at whom he, Kramarev, had not yet even gotten a good look, would behave under fire.

According to the rules it would be necessary to tell the novice and show him what was what. Try to find the necessary reference points in the mountains when they all look alike. There is a special demand here on the navigator and one retribution for a mistake—in blood. He has no right to let the crew down as people are awaiting it on the ground: if it has flown in on time that means there will be ammunition, food and water. That means the wounded and everyone awaiting help will be saved. Troop friendship and comradeship are strong, but here in Afghanistan no price can be put on them at all.

Oh, Kramarev did not have an easy time becoming accustomed to the mountains with their gorges, canyons, ridges and passes. At times it seemed his heart would burst from the intensity with which he would try to find characteristic reference points and that his brains would "dry out" from continuous calculations, but he always endured and not once did he shirk. Why should a novice be tormented for nothing if it was possible to take advantage of experience already accumulated?

"Comrade Commander. Permit me to break in the replacement?"

Depresov saw the officer's gaze was burning with hope. Perhaps another time he would have refused: Why tempt fate an extra time? You performed your duty honestly, now it is another's turn. But the mission was a difficult one and it would not hurt the novice to take a look at those who already were accustomed to action.

"Fine. Prepare the new man. Sit him down next to you."

There was a light haze over the airfield. Rays of the morning sun already illuminated the pointed peaks of distant ridges. The blades of helicopter rotors chopped the air—flight technicians were warming up engines. The mission was extremely clear: Afghan troop subunits were waging an unequal fight with the dushman in the mountains and were requesting help. The squadron was ordered to deliver landing personnel, ammunition and food and give them air support.

After taking aboard people and armament the helicopters took off and dissolved in the morning blue. Below were the somber, tightly-packed mountains. Waving his hand at his replacement, Kramarev began to show him: here was a characteristic peak, beyond it a bend in the river, and from there a 90-degree right turn and the entrance to the gorge. And there look in both directions; don't miss the drop zone with saw-toothed edges; move up to it cautiously and let out the landing personnel after descending to one-and-a-half or two meters.

The young airman compared the diagram drawn back on the ground with the terrain and nodded his head: I see, understood...

Sasha Kramarev was born 5 August 1961. German Titov took off into space on the following day. The family joked that a second cosmonaut was born in the sky, and for us the first. Later Titov's "Golubaya moya planeta" [My Blue Planet] became the lad's favorite book. He became engrossed in reading works about those who conquered the Fifth Ocean, and headed for his secret goal for now only along book paths. Secret because his parents had decided that there was enough work for their son on Earth as well. Unbeknownst to them he left for the city where he joined a plant as a handyman, since the road to the Air Club imeni Gagarin began only from the plant gate.

Sasha studied successfully in the air club but when he approached the academic finish line he was suddenly told that he would have to wait a little with graduation inasmuch as he was not yet even 18. He had to appeal to Moscow. There they understood what was taking place in the soul of this latest candidate for conquerors of space and time. As an exception they gave authorization. Later Kramarev continued study in his specialty and became an officer. He signed a request to be sent to Afghanistan. Soon the young aviator was sent to a helicopter subunit as part of the limited contingent of Soviet troops in Afghanistan.

Aleksandr Kramarev never hoped for easy strolls in the Afghan sky, but what he encountered astounded him. The mountains blended into such a monotonous gray mishmash that one's gaze literally became entangled in them and it was impossible to locate characteristic relief points quickly. But it was necessary to learn to orient oneself. He trained his vision and simultaneously mastered the expertise of navigator according to all laws of flying and navigation science. He matured and became a combat airman whom the commander entrusted with more and more difficult and responsible assignments.

Perhaps sometime on meeting friends and colleagues Pilot-Navigator Kramarev will remember how he took off with the squadron on alert one May day and headed for a kishlak where the leaders of several dushman bands and their foreign protectors had assembled. Among them also was Ahmad-shah, chief of staff of the inveterate enemy of the Afghan people. As captured bandits later related, they thought they were invulnerable both from the ground and from the sky, but bombs fell against all expectations. Only a few were left alive.

Kramarev probably also will recall how he once flew with the commander on an assignment which left a special imprint in his memory. They rescued the Soviet consul general from a dangerous area when the dushman were only a stone's throw away. This was a very complicated flight over the desert: a pair of helicopters penetrated a solid curtain of antiaircraft fire under conditions where

fierce wind gusts could bury both machines in the sandhills at any moment and the continuous wall of yellow sand forced operating the machines by instruments. When they landed at the friendly airfield Lieutenant Colonel Depresov embraced Aleksandr and said: "Glory to our navigators!" The consul general shook everyone's hands.

Pilot-Navigator Kramarev probably also will tell about his comrades, his brothers in arms, with whom he performed international duty and went through the school of courage in the stern sky of Afghanistan.

One cannot be diverted by extraneous thoughts in performing a combat assignment and Senior Lieutenant Kramarev dispelled them by force of will, giving himself up entirely to calculations and to observing the terrain.

A calm command sounded in the interphone headset:

"Sokol 1, this is 'Sokol.' Work with 'Bereza'."

"Roger, work with 'Bereza'!"

Aleksandr immediately contacted the ground subunits with which they were to work. The Afghan soldiers had been fighting the brutal dushman continuously since yesterday. They acutely needed reinforcements and ammunition. Food and water were coming to an end for sure. All this was aboard the helicopters now clinging to the drop zones like dragonflies to faded little leaves of cattails.

Helicopter Commander Capt S. Fedorov switched on the signal: "Get ready to jump!" The landing personnel acted quickly and without fuss. Each movement had been adjusted and practiced. They had to land quickly and efficiently before the dushman came to their senses.

"Bereza, this is 'Sokol 1.' Reveal yourselves!"

Now they had to be trebly vigilant. It had happened where rebels whom the protectors supplied with the latest technical equipment would get onto the radio nets of Soviet and Afghan subunits and disseminate false information. It had happened where inexperienced crews would hastily set off to one side, already under enemy fire, risking paying their lives for imprudence.

But everything was going normally. He and the commander understood each other with hardly a word spoken and guessed mutual intentions according to the movement of brows, mimicry, or a barely noticeable movement of lips.

"Commander, to the left. Just a little more... Steady! Landing party away!"

Flight Technician Senior Lieutenant V. Shevchenko opened the jump door. Taking turns and observing order, the landing personnel jumped into the cloud of

dust raised by the rotors. Crates of cartridges, grenades, mines and dry rations flew after them. Rubber water containers smacked the ground. Bundles of wood did not withstand the impact and scattered. Never mind, they would pick them up.

Feeling hard ground under their feet, the landing personnel ran aside, not forgetting to wave thanks to the helicopter personnel. They could not get by without them—mountains were worse than traps.

Suddenly Kramarev noticed that the tachometer needle was dropping. A little more and the left wheel of the undercarriage would touch the ground. A bank to the right would follow, and then... Man still can fight oxygen starvation at high altitude in some way but, alas, not a machine.

"Commander, rpm!" shouted the navigator, and managed to note that Shevchenko had closed the door.

"I see, Navigator," Fedorov quietly said, holding the controls with effort.

The helicopter dove into the gorge in a right bank. Leveling off below, it got on the customary heading. Everyone would relive these minutes later at the base, but now, suppressing the hot wave which rose in his throat, Aleksandr plunged himself into ordinary navigator's work.

Orange dotted lines extended to the helicopter at the exit from the gorge. These were dushman antiaircraft machineguns. The commander maneuvered sharply, but this time they didn't manage to leave without adventures. One bullet stitched through the blister of the pilot's cockpit and the oncoming air flow struck the face. Fortunately the bullet did not hit anyone. When the helicopter had burst out of the danger zone Fedorov asked over the SPU (aircraft intercom system):

"Alive?"

"The bullet knows fighters for a just cause," replied Kramarev with a joke.

Soon the squadron landed safely at its airfield. Aleksandr went up to his replacement, smiled and asked:

"How do you feel?"

The replacement appeared to be sick, but he answered gallantly:

"Ver-ry fine," but realizing that bravado was inappropriate before these experienced lads, he added with embarrassment: "It's hot... How do you live here?"

"It is habit. When you begin to work yourself, it will be easier. At work danger is simpler to endure. Always remember the important thing: it is difficult in the air,

but there on the ground it is more difficult. When you genuinely sense this you will make a breakthrough! Only here will you understand what friendship and mutual help are. All the rest is fuss. Take the machine, friend. It is time for me to go to headquarters and fill out forms."

When Aleksandr Kramarev was presented with the Order of Red Star he whispered to the person standing next to him:

"But why me? It seems I didn't do anything..."

But the person next to him only put his arm around Kramarev's shoulders silently.

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6904

Guards Fighter Regiment's History and Traditions
91440068k Moscow AVIATSIYA I KOSMONAVTIKA
in Russian
No 2, Feb 88 (signed to press 31 Dec 87) pp 34-35

[Article by Gds Lt L. Besaraba, aircraft technician:
"Guardsmen's Honor"]

[Text] We often speak about the regiment's combat traditions and the Soviet soldier's honor, connecting this above all with our readiness to serve the Soviet Motherland faithfully and defend her courageously and skillfully as did those who went through the crucible of battles. Today they have been replaced in combat formation by soldier-internationalists of the 1980's, and the guards colors crowned with orders remain as a permanent unit veteran.

Exactly a year ago we military school graduates who arrived in the unit were transported to the airfield by the deputy regimental commander for aviation engineering service. Here for the first time we saw combat aircraft—camouflaged fighters with guards markings and red stars faded under the southern sun. At that time they were almost identical to me, differing only by numbers on the fuselages. On one I saw the inscription "Soviet Lithuania" neatly traced out in yellow paint.

This meeting on the aircraft hardstand and a visit to the combat glory museum forced us to turn to the heroic past.

Yellowed pages of the unit history log which were beginning to crumble in places; the pale violet lines of orders and summaries and of meager announcements about air combat and the first victories and combat losses. "Jr Sgt Sergey Vasilyevich Serov flew two combat sorties and died in air combat 26 June 1941." And a long list of those who did not return from an assignment, who were missing, and who died in air duels.

A familiar name flashed by: the "Soviet Lithuania" Squadron. I became interested. The folder contained a neatly filed address to regimental personnel: "In presenting to you the 'Soviet Lithuania' aircraft [plural] on behalf of fighting men of Lithuanian national units of the Red Army and workers of the Lithuanian SSR, we give you a combat order to always be in the front ranks. . . . Let the red-starred 'Soviet Lithuania' aircraft fall on the enemy like a flaming sword and help our heroic Red Army rout the bloody hordes of fascists and speed up the hour when red banners will again flutter over the cities and villages of Soviet Lithuania."

The Republic's workers collected R1,025,000 in a short time for building 12 fighters. In February 1943 they were handed over to our regiment, which at that time was being reformed near Moscow, where it also was receiving new aviation equipment. Already on 2 September the guards title had been conferred on the regiment for combat merit.

The "Soviet Lithuania" Squadron functioned successfully as part of the regiment. Its commander was HSU B. Khlud, a brave pilot and former lathe operator of the Kiev Arsenal Plant. In just a month of air combat, squadron pilots shot down 52 fascist aircraft, 10 by the commander himself. During the Berlin operation the air regiment's guards pilots flew 1,215 combat sorties, destroying 48 enemy aircraft.

The order came on 25 April 1945: "Prepare the regiment for flying over Berlin in parade formation on 1 May 1945 and drop a red banner with the inscription 'Victory!' on the Reichstag building. Take-off at 1200 hours."

The Yak-3 fighters were not adapted for performing such a mission and there was no time to design suspensions. A six-meter red panel with the word "Victory!" traced in gold letters was neatly stowed beneath the landing flaps of Gds Sr Lt K. Novoselov's aircraft.

Then it was 1 May 1945. The planes flew over the center of Berlin in precise formation. The Reichstag, final bulwark of fascist resistance, appeared below amidst the smoke, dust and charred residue. The altitude was 800 m. At the leader's command Gds Sr Lt Novoselov lowered the Yak's flaps. The red banner with the inscription "Victory!" was over the Reichstag.

Eleven pilots of our unit became Heroes of the Soviet Union in the war years, including Gds Sr Lt Novoselov. Gds Sr Lt V. Sizov was placed on the rolls of 1st Squadron in perpetuity.

Today the regiment lives and performs its difficult missions in a guards manner. Many of the unit's soldier-internationalists have been recognized with state awards. The aviators fulfill the combat training plan with high quality and without flying incidents. Personnel of the aviation engineering service make a substantial contribution to this. The majority of personnel are 1st or 2d

class specialists. All this indicates a continuation of traditions, which remains one of the distinguishing features of the guards character.

Party members Guards Lieutenant Colonel S. Pepelnitsyn, Guards Majors M. Averchenkov, V. Reshetilo and L. Okunev, and Guards Captains A. Salenko and I. Derepa possess just such a character and teach young aviators that understanding of their purpose. Together with the unit command element and the party and Komsomol activists, they do a great deal to instill responsibility and pride in the high guards title in young officers.

This is facilitated by talks about the unit's combat record and meetings with veterans. For example, Hero of the Soviet Union K. Novoselov and other frontline pilots have traveled to see us more than once. A visit to the combat glory museum, where documents are assembled telling about exploits of countrymen in past war years, leaves a deep impression.

Unfortunately we are not making full use of the indoctrinational role of wonderful front traditions. A braking mechanism still operates in a number of cases. Some personnel do not put much thought into such concepts as honor and responsibility. Is that not the reason that there are still few of us who pay attention to instilling pride for serving in a guards unit? Guards rituals also do not always become vivid, memorable events in a soldier's life and service. Indifference, conventionalism and formalism do much harm.

It probably would be correct to allow an aviator to retain the right to wear the guards emblem if he departs for a new duty station. Let countrymen know that their new comrade performed his duty with honor in a guards unit. And conversely, deprive a soldier of this high title for misdeeds discrediting the honor of a guardsman. It also would appear that mastery of new aviation systems should be entrusted above all to guards regiments. On the whole, of course, we need effective measures ranging from significant to the most commonplace, as the saying goes.

But still the important thing in my view is for each aviator wearing the emblem of valor and heroism on his chest to ask himself: "Am I doing everything as military duty, the military oath and regulations ordain? Am I fulfilling my duties precisely? Did I take a step forward in combat improvement?"

The guardsmen's honor. This valuable spiritual heritage continues in formation today and serves the accomplishment of urgent tasks of restructuring. The exploits of frontline aviators and soldier-internationalists live in our hearts, prompt us to give all our efforts and all the ardor of our souls for augmenting unit glory, and call on us for selfless military labor.

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6904

Party-Political Work During Fighter-Bomber Squadron Tactical Exercise

914400681 Moscow AVIATSIYA I KOSMONAVTIKA in Russian

No 2, Feb 88 (signed to press 31 Dec 87) pp 36-37

[Article by Lt Col N. Nikolayev: "From the Experience of Party-Political Work: Attuned to Victory"]

[Text] The fighter-bombers flew at low altitude, strictly maintaining combat formation. Soon would come the "front line," and beyond it the strike target—the opposing side's tank reserve concentrated for a breakthrough. Group Leader and 1st Class Military Pilot Captain N. Tretetskiy commanded his wingmen:

"Get ready..." And a few seconds later: "Maneuver!"

The swift winged machines executed the difficult evolution precisely as if interconnected by an invisible thread and safely crossed the "front line." There was the strike target.

"Attack!" commanded the leader.

And below on the ground the fiery plumes of bursts became more frequent. A turn, and another strike against the targets. Now the heading was to the friendly airfield. After skillfully penetrating the air defense coverage the group soon landed. Some time later it became known that all pilots had kept within the norms for outstanding or good grades.

"Good lads, you worked well," said the inspector, an officer from higher headquarters, commenting on the aviators' actions. "Let's see the results with which the next group returns from the range."

They did not have long to wait. Soon came the announcement that subordinates of Flight Commander and 1st Class Military Pilot Captain V. Mironenko successfully coped with the assigned mission. They quickly detected and "destroyed" camouflaged "enemy" firing positions.

Squadron Commander and 1st Class Military Pilot Lieutenant Colonel S. Koblashov and his political deputy Major A. Novoselov, also a 1st Class military pilot, were first to take off that day. Both quickly located and accurately hit the targets. An express leaflet published in the subunit immediately after their return called on the combat airmen to take their example from the leader of the pair. That set the tone for the entire squadron's operational training work. Major P. Filatov, Captain V. Basyuk, Captain V. Bezrukov and other party members who are leaders and party activists performed the assignment excellently. Group leaders captains N. Tretetskiy

and V. Mironenko accomplished the missions expertly. Their personal example activated the human factor: it inspired subordinates and gave them a spirited mood and resolve.

It is common knowledge that an exercise is a good school of combat proficiency and of education. Therefore the subunit devotes much attention to the quality of party-political support to the preparation and conduct of an LTU [flight tactical exercise], the main goal of which is to move the personnel to vigorous actions and to victory in practice combat.

It has become the rule in the subunit to hold party and Komsomol meetings before such an important measure, and prior to this exercise the question of the personal example of party and Komsomol members in the tactical flying exercise was discussed at the meetings. Party members analyzed the progress of preparation for the exercise in detail, fundamentally evaluated deficiencies and expressed suggestions on eliminating them. For example, questions were raised about the personal example of party members who are leaders and about sponsorship of young pilots, technicians and mechanics who would be taking part in the exercise for the first time. All this was reflected in the meeting's resolution.

In fulfilling the resolution the party buro assigned Deputy Squadron Commander and 1st Class Military Pilot Major P. Filatov to arrange special classes with group leaders, on whose actions success in performing the operational training assignments depended. The party buro placed their tactical, air, weapons and psychological training under supervision. It was recommended that they study the experience of tactical employment of fighter-bombers and choose the most effective methods and procedures for the specific situation.

First class combat airmen and party activists Major N. Proshcheruk, Captain A. Shegolev and Captain V. Bezrukov helped senior lieutenants A. Zayko, Ye. Dzus and others prepare for the exercise. They did not limit themselves to explaining only technical matters, but devoted much attention to the moral attunement of young people for the difficult test. Considering that a group flight for tactical application is fraught with serious mental stresses, the senior comrades shared their own experience with the young pilots, told them how best to perform a particular exercise, and worked out with them actions in special instances.

During preliminary preparation the political officer and party and Komsomol activists made all personnel aware of the tactical flying exercise missions, arranged an exchange of experience of the best specialists, held talks with aviators by categories about strict compliance with requirements of flight safety and about ensuring high

quality preparation of aviation equipment and armament, and provided for other measures aimed at increasing the personnel's combat activeness and responsibility. The content of these measures reflected party requirements on restructuring in all spheres.

The center of party-political work shifted to the flights and maintenance groups with the beginning of the tactical flying exercise.

Major A. Novoselov chatted with each pilot before sorties: he inspired confidence in some, cautioned others against hastiness, and gave advice to others on how best to act in a particular situation. Such support came in very handy. For example, Senior Lieutenant Ye. Dzus successfully performed the assignment and did not let comrades down in socialist competition, which flared up with full force.

In a break between sorties the aviators assembled at the "Socialist Competition Board," located near the entrance to the high-altitude hut. By decision of the squadron commander the political deputy posted grades here for performance of the assignment. The people animatedly compared results and exchanged opinions.

Back on the ground in the period of preparation of equipment and armament for the sortie an acute rivalry unfolded between the flights of Tretetskiy and Mironenko, long-time rivals in competition, as well as between crews in the flights for high quality of mission performance. The rivalry also continued in the air. The end result of collective labor largely depended on the pilots. They had to perform firing and bombing on the range and penetrate the opposing side's air defense coverage. It must be said that they worked with initiative and to their utmost. Each one tried to accomplish the assigned mission in a quality manner and demonstrate his proficiency to the full extent.

The squadron commander, his political deputy, the subunit party buro secretary, secretaries of flight party organizations, and other activists tried to maintain a highly spirited frame of mind in pilots and technicians and create an atmosphere of comradely rivalry.

In preparing for the flight tactical exercise they helped comrades make individual socialist pledges within their abilities. Some had planned clearly inflated goals not conforming to personal professional training, and others on the other hand did not set the objective of demonstrating their proficiency to the full extent. The aviators heeded the advice and revised their personal pledges, which forced them to accomplish all operational training missions with greater responsibility.

During the flight tactical exercise party and Komsomol activists made full use of the mobilizing principles of socialist competition. They ensured the competitiveness of crews, glasnost, comparability of results, and the

possibility of repeating foremost experience. For example, express leaflets appeared on the display next to the competition board dedicated to 1st Class Military Pilot Major N. Proshcheruk and 1st Class Specialist Senior Lieutenant Yu. Kurochkin. The leaflets briefly told how these officers managed to achieve success.

It was not just visual agitation materials that told about foremost experience. It was related by agitators and non-T/O&E propagandists. Squadron Political Deputy Major A. Novoselov, Party Buro Secretary Captain V. Basyuk, and party buro members arranged an exchange of experience in accomplishing the most difficult tactical and fire missions. During this exchange Captain Mironenko, known for his ability to hit targets on the first pass, directed colleagues' attention to the need for maintaining flight parameters precisely, for precise actions on the bombing run and for careful aiming. In a talk with young aviators Captain Tretetskiy emphasized that successful penetration of "enemy" air defense coverage is impossible without an excellent knowledge of the tactical situation and a study of the disposition of the opposing side's forces and weapons.

During the flight tactical exercise Major Novoselov also was able to unfold sharp competition among technical personnel. Even earlier he had noticed that in similar activities more attention was given to the pilots' competition and that technicians and mechanics often remained in the background. The political officer decided to correct this deficiency. During the exercise he tried to be with the aviation engineering service specialists more often and constantly inquired how things were going with them and who was setting the example in work. Together with Party Buro Member and Deputy Squadron Commander for Aviation Engineering Service Major G. Turkayev and other activists, he helped the technicians and mechanics unfold competition more widely for bettering norms of preparing aircraft for a repeat sortie and for high quality of aircraft servicing. Each aviator made specific pledges and challenged a comrade to compete. Express leaflets were devoted to foremost specialists, and the pilots learned about their achievements.

The spirit of healthy rivalry largely uplifted prompt summarization of competition results by tasks and norms. Commanders of flights and maintenance groups tried to objectively assess the actions of crews and of each pilot, technician and mechanic, and to show the hidden reserves. For example, in comparing results of fire against ground targets it turned out that they were better for Captain Mironenko's subordinates, but his flight employed a stereotyped maneuver in penetrating the "enemy" air defense coverage and suffered "losses." Pilots led by Captain Tretetskiy, however, completed firing without losses, and they were given the victory.

Such a strict, objective approach to assessing military labor elevated the aviators' combat activeness and spirit of rivalry even more.

The regiment which includes this squadron has grand combat traditions. During the Great Patriotic War its personnel covered themselves with unfading glory. The squadron political officer and party and Komsomol activists made skillful use of examples of countrymen's combat actions in those menacing years in work to activate the human factor, such as the following: Captain N. Kokhanyuk's crew delivered an accurate bombing strike against enemy positions in one sortie. Suddenly the aircraft was attacked by fascist fighters. The pilot did not lose his head. Maneuvering skillfully, he managed to down an enemy aircraft.

The activists tied in the frontline episode with missions facing the aviators that day. They set as an example the actions of young party member Senior Lieutenant A. Zayko, who maneuvered skillfully and successfully executed field launches.

Other ideological measures (reading newspapers, listening to radio broadcasts) also were held in the squadron that day. Party and Komsomol activists accented the people's attention on political events in the world and on aggressive aspirations of world imperialism; they emphasized the need to observe political vigilance and instill class hatred toward the Motherland's enemies.

It is common knowledge that the success of any matter is determined above all from the end result. It must be said that squadron party members who are leaders and the party and Komsomol activists were able to achieve the personnel's high combat activeness as a result of thoughtful, purposeful party-political work. The military aviators successfully accomplished missions set for the flight tactical exercise, raised their professional level and marked the 70th anniversary of the USSR Armed Forces with new achievements in combat and political training.

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6904

Evolution of Air Combat Traditions Traced

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in Russian

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[Article by Col Yu. Kislaykov, 1st Class Military Pilot; and Col (Res) V. Babich, candidate of military sciences: "Experience, Born in Battles: Traditions are Weapons!"]

[Text] The life of any society, class, social group, public organization, labor or combat collective, and even family has its own historically shaped traditions which play an important role in forming moral standards of the younger generation. As the dictionary of the Russian language treats the word, traditions are the bequest to posterity of historical material, customs, orders, rules of behavior, ideals, physical and spiritual values and so on.

There are many superb traditions in the Soviet Air Forces which originated in the years of revolutionary events. Even today they have not lost their indoctrinational significance. Traditions in tactics, which gradually shifted from the category of precepts to the rank of laws and principles by which combat airmen are guided in their operational training practice, play a special role.

Red Military Pilot F. Grab of the 1st Tver Air Detachment downed a White Guards aircraft in air combat in the sky near Yekaterinburg on 18 October 1918. That marked the beginning of air victories and grand traditions on which succeeding generations of Soviet fighter pilots were indoctrinated.

History has arranged that each new generation of pilots master new aviation equipment. Grab's pupils (he was an instructor at the Borisoglebsk Air School after the Civil War) already were flying not the Farmans and Nieuports, but the first aircraft of Soviet production, the I-3 and I-5. Pilots of the 1930's fought in Spain and China in I-15's and I-16's, and fighter pilots of the fiery 1940's fought in Yakovlevs and Lavochkins. Increased equipment capabilities changed the picture of combat. Tactics was augmented with new elements which combat airmen had to work out from scratch.

Radical changes occurred in aviation in the 1950's—it became jet-powered. Pilots first put on oxygen masks and anti-g suits, and then also high-altitude suits. The framework of combat took in the area of supersonic speeds and intruded on the stratosphere. A pilot's capabilities for seeking the enemy became limited, and so he conceded some of his functions to electronics. Command post teams which assessed the air situation and gave target designations were included among the participants of combat. All-aspect missile weaponry of different ranges and electronic warfare equipment were drawn into the sphere of combat. Over time the reserve of man's physical abilities became less and less while the psychological load became greater and greater. Then expert systems and artificial intelligence began to be connected in to help him.

One might think that the radical changes which occurred in air combat over 70 years should lead to a forgetting of traditions and depreciation of the value of "historical material" left as a legacy by the first fighter pilots who fought for Soviet power. We will not seek refutations, however, but will only give a few examples.

"A pilot who masters aerobatics to perfection and who is trained for close maneuverable combat always will be able to fight at long ranges," wrote Twice-Honored Order of Red Banner wearer Red Military Pilot Ya. Gulyayev in *VESTNIK VOZDUSHNOGO FLOTA*. The Civil War hero was looking far ahead! For example, beginning with the 1950's theory hastened to abolish close maneuverable combat along with the change in the next generation of jet fighters and an increase in range of effective fire, but the experience of tactical employment

returned it to use. For example, American fighter pilots who had forgotten how to maneuver during the dominance of intercept tactics got a bitter lesson in Vietnam. They suffered defeat in close combat with North Vietnamese MiG's despite overwhelming numerical superiority in the air.

Just what did aerobatics give a pilot in combat? Above all a horizontal maneuver in the shortest possible time and with minimum radius, and vertical maneuver with maximum climb. The combat pilot who mastered aerobatics was first to enter the area of possible attacks to within range of effective fire and to hit the enemy for certain. A very important principle of combat appeared in practice—the link of maneuver and fire, registered for the first time in the "Boyevoy ustav" [Field Manual] in 1943. With respect to a pilot's training A. Tumanskiy, commander of the "Ilya Muromets" Bomber No 2 and a Civil War hero, wrote the following, for example, about remarkable fighter pilot G. Sapozhnikov: "He was known at all the fronts. The sensitive, kind, responsive Sapozhnikov was ready to give his life for a comrade at the necessary moment. He invariably displayed high courage in combat. I admit that as he circled over the airfield I looked admiringly at how he executed such a cascade of very clean, amazingly precise and beautiful figures that I had ever had occasion to see up until that time."

And here is what Thrice Hero of the Soviet Union I. Kozhedub writes: "Young pilots often asked me the following question: 'How can we learn to attack the enemy quickly and promptly? How can this be done?' Both my brother officers and I often discussed this question and arrived at the following conclusion: the important thing is to master flying techniques and firing to perfection. If attention is not engrossed in the process of controlling the aircraft a fighter pilot can correctly execute a maneuver, close quickly with the enemy, aim accurately and destroy him." As we see, traditions live!

In describing Sapozhnikov, Red Military Pilot Tumanskiy also defined one of the most important qualities of the first combat pilots: readiness to give their life for a comrade. Our pilots adopted this quality and took it with honor through the entire Great Patriotic War. They would go for a ram without a moment's hesitation in order to save the other member of the pair and they would land on enemy territory to evacuate a friend downed in combat. Our pilots who performed international duty in Afghanistan performed such acts repeatedly.

Article 7 of the first Fighter Aviation Combat Manual, published after the Civil War, states: "A fighter pilot must seek combat with the enemy." This precept reflected not only the personal qualities of the revolutionary fighting man, but also the basic principle in air combat tactics. Combat aggressiveness and the ability to make a bold decision and seize the initiative from a numerically superior and technically better outfitted

enemy is one of the conditions of victory in the air. "The person who, having thought out his maneuver, will find in himself the boldness to attack decisively wins. One must have the willpower to approach the enemy to within range of killing fire despite clear danger. If a pilot does not fulfill this condition, he will not make a fighter pilot."

This tradition, born in fighting for Soviet power, was continued by fighting men of the Great Patriotic War. "Fighter pilot! Seek to meet the enemy. Do not ask how many enemies, but ask where they are"—that was the opening of the front album of Thrice Hero of the Soviet Union A. Pokryshkin in which he collected air combat tactical procedures.

Relying on his abundant experience, I. Pavlov, commander of the 1st Fighter Group, believed that in combat one must try to attack suddenly: "Surprise is the most important precondition for achieving success." This is facilitated in an individual duel by cunning, adroitness, and an ability to come right up close to the enemy unnoticed through iron composure or a classic trick; in group combat it is facilitated by a combat formation (rational arrangement of aircraft in the air) which gives fighters freedom of maneuver, mobility and mutual support. "Only in that way is it possible to hide one's real forces from the enemy, create conditions for a surprise attack and eliminate the possibility of the enemy taking precautionary measures for defense." Even today the meaning of these lines holds a worthy place in guidance documents on combat. This is the best proof of the current nature of past experience and its unwillingness to become outdated. Our young pilots have something to learn from the pioneers of air combat.

A. Kozhevnikov, commander of the 2d Red Banner Fighter Squadron, wrote in an aid on air combat tactics: "Strengthen unity and interaction. In group combat every individual combat pilot, maneuvering individually and maintaining contact with the others, adapts himself for best delivery of the attack at the point planned by the commander. The principle is that one person attacks, a second supports and a third protects. Inasmuch as the most serious attack is from the rear, a guarantee of security is a difference in altitudes (up to 500 m) for individual groupings of aircraft. The more groups there are, the more difficult it is to maneuver and the less coordination there is in their actions. Hence it clearly follows that the greater the distance to the enemy, the more the dispersal. The closer to the enemy, the more compact the 'flock.' Those in front fly below those in back and mobility makes up for small numbers."

As we see, back in 1923 the prototype of the "stack" was created—a combat formation staggered in altitude which was used widely in air battles in the Kuban 20 years later. The tactical purpose of groups included in the combat formation also was defined—attack, cover and security. It is characteristic that functions of the first two groups basically remained unchanged while the third group was

transformed into a reserve group. Formations of the "flock" were called compact and dispersed. The compact formation subsequently was called a close formation without a change in content, while the dispersed formation was preserved, but an intermediate formation, an open formation, was added to them. The idea of realigning the combat formation by stages of combat later was fully confirmed. The following words also proved prophetic: "The absence of mass tactics and lack of a reliable method of communication among aircraft can hold back the development of air combat."

The first air combat manual also contains the following phrase: "Be able to take a risk." All pilots who generalized their experience were unanimous in their opinion that air combat is very specific. Features distinguishing it from ground combat were seen to be that in a short-lived clash it was difficult to guess ahead of time what positions the enemy would occupy and what his plans and calculations were. As a rule events in the air developed so suddenly and complexly that swift decisions were required conforming to the sharply changed situation. Under conditions of a time deficit it was often necessary to take a risk, relying only on experience and intuition developed on the basis of a knowledge of the laws of combat and enemy tactics. The experience of combat revealed a direct dependence: the higher a fighter pilot's training, the fewer risky decisions and the more competent decisions there were. And training was recognized as a "matter of peacetime preparation."

Aircraft with increased flight speed and range of fire participated in air combat in the Great Patriotic War. The tempo of combat rose noticeably. A pilot had to react instantaneously to sudden threats. "A pilot is concentrated will, character and ability to take a risk." This forgotten expression was popular not long ago.

An analysis of thousands of instances of air combat does not provide an unambiguous conclusion about their dissimilarity and diversity. Chief Mar Avn A. Novikov, CIC of the Red Army Air Forces in the war years, wrote on this score that an opinion of the uniqueness of air clashes exists among the uninitiated. The very nature of combat, however, does not permit infinitely developing and improving its procedures and forms with equipment unchanged. Of course every fighter pilot has favorite procedures which he masters like a virtuoso; this individualizes his signature. On the whole, air combat even by masters of higher aerobatics consists of different combinations of already familiar maneuvers and figures.

The path to modeling air combat can be clearly perceived here. It is a method permitting a deeper understanding of the essence of modern combat, revelation of its principles and dependence on growing capabilities of aviation equipment, and thus a reduction in the high degree of risk in conducting it. But like the ability to take a risk, the right to take a risk remains with the pilot who makes an independent decision in a complex and dynamic air situation.

"Develop tactical thinking" is the motto which stemmed from principles formulated in air combat of Civil War times: suddenness of appearance, rapid situation estimate, immediate decisionmaking, a maneuver in minimum time, and a concentrated, accurate attack. The first three principles obligated the fighter pilot to develop tactical thinking and the ability to win the contest of minds with the enemy. The process of his reaction to a change in the air situation was expressed as follows: visual perception—transmission to the brain—analysis—decision—a command sent to control organs. It was believed that this had to be a "record" reaction.

This requirement not only was preserved over the years, but also grew more rigid. It was required to think not only swiftly, but also in a nonstandard manner. Kozhedub writes: "In each combat the experienced and theoretically educated pilot is an innovator. He finds procedures for conducting combat by combining figures in order to occupy a more favorable position in the air and attack the enemy instantaneously."

Pilots in the Great Patriotic War were helped to develop tactical thinking by combat experience which was collected literally bit by bit. A. Pokryshkin wrote in *VESTNIK VOZDUSHNOGO FLOTA*: "In order to gain a complete picture of combat and draw proper conclusions it was the practice to thoroughly question all group pilots and have a detailed critique of their actions. This permitted recreating the general picture of combat and developing the most advisable actions by our fighter pilots."

"Squeeze everything out of the equipment it can give"—this precept of Twice-Honored Order of Red Banner wearer and Civil War hero I. Voyedilo became a vital necessity for every fighter pilot of subsequent generations who strove for victory. According to his contemporaries, Voyedilo himself flew in such a worn-out aircraft that it was frightening to get in. Risking his life every second, he would perform combat assignments of desperate boldness.

Fighter pilots were always distinguished by an exceptional, wonderful quality—a boundless love for the Soviet homeland which increased their forces tenfold in the most difficult combat situation.

In the menacing year of 1942, when there was still relatively little experience of combat against fascist aviation, an article entitled "Develop Cadres of Soviet Aces!" appeared in the newspaper *KRASNAYA ZVEZDA*. It told how ace combat pilots had to be prepared, from examples of the experience of the first Red fighter pilots. The article noted that the Soviet ace was a fighter pilot who had achieved a high level in his combat proficiency. The ace was immediately apparent from the number of downed aircraft and from the nature and methods of conducting combat. He was a model of military valor, courage, ability, high discipline and dedication to the Motherland. Recognition that a pilot has

qualities inherent to a Soviet ace obligates him to have new successes; he cannot quietly rest on his laurels. The ace has to achieve victory in any combat, no matter how complicated the air situation in which it takes place. The Soviet ace is obligated to steadfastly improve himself and teach his art to his comrades. The egotism of a lone master fighting for the sake of personal glory is alien to him. His combat is the honor of the squadron, the honor of the regiment. The regiment is proud of its best pilots and the aces in turn place the good name of the regiment above all else, multiply its glory, and bring up people like themselves.

There are many masters of tactical employment, people with vim and with the talent of born fighter pilots, and real aces in our flying environment. Our aces of today are the commander's support in accomplishing difficult combat missions. At a decisive moment of combat, cohesive pairs and flights of masters occupying the place in combat formation inherent to their qualification can quickly dislodge the initiative from enemy hands and help the common victory by their precise actions. Mutual help is not simply a tradition, it is the law of life of Soviet pilots.

Combat traditions are a part of history and of combat life written in the blood of many generations of Soviet pilots who fought for our Motherland's freedom and independence. Past experience is the strongest weapon in the hands of the educated fighting man and patriot. It is a matter of honor for every self-respecting aviator to know and master the experience accumulated by predecessors. Developing combat traditions means solicitously preserving the grand heritage of older generations, augmenting spiritual values, and constantly and thoughtfully improving the personnel's attitude toward their civic and military duty. Traditions in tactics are the standard of conduct of the pilot in combat and a display of his high moral potential and professional maturity; it is the most important tool of the continuity of generations, a means of instilling pride in one's branch of the Armed Forces and instilling life-giving Soviet patriotism.

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Definition, Examples of Air Combat Tactical Procedure

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in Russian

No 2, Feb 88 (signed to press 31 Dec 87) pp 44-45

[Article by Lt Col G. Drugoveyko, 1st Class Military Pilot: "In the Arsenal of the Air Combatant: So Just What Is a Tactical Procedure?"]

[Text] Let us imagine a number of combat situations:

—The enemy is in front of us in a position where we have an opportunity to employ weapons and he does not even suspect what will happen in an instant;

—In flight we absolutely precisely know the enemy's combat missions, his alignment and capabilities;

—We have taken off to meet the enemy with such numerical superiority that we are capable of destroying him at any point in space, and every element of our combat formation is reliably covered against an answering attack;

—A duel situation can be seen in the air but our side has indisputable advantage in the combat capabilities of equipment permitting engaging the enemy at ranges not accessible to his weapon systems;

—And finally, combat was struck up under conditions of an absolute equality of all factors determining success, but our side has the advantage in maneuver qualities of the aircraft without alternative.

Now let us answer the question: Are special tactical tricks necessary in the circumstances enumerated? It is quite clear that in those situations straightforward decisions in which essentially there is no place or even a need for tactical art are natural, logical and effective.

And here are situations of a different nature:

—We took off knowing about the enemy only that he too would be somewhere in the sky;

—Combat is struck up under equal conditions but it is known that the enemy is inferior to us in tactical capabilities at long ranges although he has advantages in close combat;

—While in flight we received information about a significant numerical superiority of the enemy whom we were to engage.

And again we ask ourselves: In pursuing the objective will we succeed in achieving combat success, getting by without special actions, and limiting ourselves to direct, straightforward, simple decisions? Again the answer is obvious. There is also no doubt that in reality situations of the first type will be negligibly few. We have to count on the fact that a situation always will take shape in combat where an acute conflict between tactical capabilities and the objectives which we pursue will be the most significant moment. We will encounter a clear-cut deficit of tactical capabilities with respect to assigned missions. Tactics holds sway in combat. Tactical procedures will become its most widespread manifestation, and they will ensure victory.

So just what is a tactical procedure?

It would appear that without clarifying the essence of any phenomenon, including a tactical phenomenon, we cannot reliably and productively operate with the concept that embodies the phenomenon itself.

Let us return to the situations where we are convinced it is impossible to achieve execution of a combat mission without the use of tactics. What is common in them and what is the reason that generates the need to employ special actions?

What is common to all situations requiring the use of tactical energy is the absence of a positive balance of factors affecting the engagement, course and outcome of combat. In the first case we run up against a shortage of information about the enemy necessary for correct actions. In the second case we encounter an absence of technical superiority over the enemy in the full range of distances. In the third it is a straightforward lack of forces.

What can be undertaken in the first case? Two principal methods can lead to the desired information state. We can undertake something that will place the enemy face to face with the need to react to our actions according to the laws of known logic. Then we have a chance of forecasting his behavior, i.e., we gain the information we earned. But it is no simple matter to force the enemy to take actions we like. Special demonstration measures are required, organized so that the enemy cannot ignore them.

If we are not sure that we will succeed in forcing the opponent into a favorable reaction, however, then we can do something to deprive the enemy of information about our forces and their current status. What is the gain? Equality of information supply or, more precisely, mutual information impenetrability. This is not so little when without equalization we know nothing about the enemy, and we do not have the right to assume that he too does not have the information needed for rational actions if nothing is done to assure this. What steps can equalize information chances? They include various interference, flying in screened zones, a difficult-to-read combat formation and so on.

How are we to proceed in case of a change in relative effectiveness of weapons depending on range? The general approach is simple: ensure that the primary part of combat takes place at ranges which give us advantages in the fire phase of the struggle. The specific realization of this idea is the question of aviators' professional expertise. This includes flying through an unfavorable zone at maximum speed in a combat formation precluding the enemy's fire effect against all elements of our formation at once, a specially staggered formation, and advanced precombat maneuvering.

How can we neutralize the effect of an overall numerical superiority? Let the reader himself find the answer to this question. The principle of solving this problem is as

follows: an absence of numerical equality in all the space does not preclude achieving superiority in some zone or at a certain center, where combat should be waged and the fate of the combat mission determined.

Well then, the tactical procedure comes on the scene when we are forced by the situation itself to transform its factors in a direction favoring us. A contradiction always is alive in combat between set goals and available capabilities. The essence of contradictions of combat consists of a discrepancy between conditions ensuring success and the actual conditions taking shape in the sky without our consciously influencing them through governable factors of the combat situation. Now we have the basis to give a definition of the concept "tactical procedure."

A tactical procedure is a system of special actions (steps, measures and so on) which transform the combat situation with the objective of having it conform to our condition and tactical capabilities to the maximum; it is a method of achieving a positive balance of factors influencing the process of enemies' struggle; it is a realized manipulation of factors which influence results of a combat clash in all its phases. That in our view is the essence of a tactical procedure.

It probably is useful to carefully analyze the development of a tactical procedure in a specific example.

Let us assume that some hypothetical (imaginary) group of pilots has taken off toward the enemy (also hypothetical), knowing that the tactical capabilities of both groups are equivalent for the majority of components. But one of the groups still has an unquestionable advantage: its long-range missiles can be used from greater distances than similar weapons of the opposing side.

Under those circumstances what tactical mission can be assigned the pilots who have that advantage? Obviously it is quite reasonable to word a typical tactical mission as follows: destroy the maximum number of enemy aircraft and have no friendly losses. That mission is legitimate and feasible. One condition has to be observed: do not close with the enemy to a distance where he will be able to employ his missiles because from a certain line the tactical capabilities even out and the requirement to have no losses will become impracticable.

This means that the tactics here are obvious: after launching missiles from distances exceeding the effective range of the enemy's missiles, disengage from the attack with a maneuver so as not to be in the killing zone.

But the first part of the mission, destruction of the maximum number of targets, will be unfulfilled with that decision. To execute this requirement the pilots having weapon advantages have to stagger their combat formation so that at the moment of one echelon's completed disengagement the second echelon already has arrived at the open-fire distance and has begun firing on the enemy.

But perhaps it is advisable to strike the enemy aircraft with all forces at once from maximum range and thus decide the outcome of combat in a single episode? That would be very convenient and desirable if the rival created a special combat formation "for the advantage" of the opposing side. But he will not do that! It is because it is difficult for a large group to maintain a frontal formation. Moreover it is impossible to ascribe a total absence of elementary common sense even to a hypothetical enemy.

Consequently the principal factor in the procedure in question will be rational echelonment of available combat forces: simultaneous arrival at fire avoidance line by first echelon and at open-fire line by second echelon. Herein lies the meaning of a special approach to joint actions of combat participants, an approach aimed at maximum concurrence of expected results and assigned mission and built on realization of a purely technical advantage.

Meanwhile it is difficult to hope that what has been planned, calculated and checked will be accomplished smoothly without deviations. Therefore additional tactical measures also are necessary, such as measures with the objective of ensuring stability and reliability of the tactical concept. This function can be performed by on-board radar monitoring of the combat formation's parameters. Ground control entities can help considerably in the coordination and precision of executing the procedure.

Depriving the enemy of the greatest possible amount of information which reflects the situation and is used in producing a decision would be an effective reinforcement of a procedure at the decisive moment.

We have not exhausted the analysis of the situation and of further development of the procedure. What is advisable for each preceding echelon to undertake after a fire advantage not only has been realized, but also lost and an exit from under answering fire has been completed? How many such echelons following one after the other have to be organized? What should be provided for in case of enemy attempts at avoiding combat on head-on courses? We will leave these and a multitude of other questions open because we are intentionally limiting ourselves to a small fragment of combat. It was important to examine the approach to a specific combat situation through examples of specific actions making up a tactical procedure. The graphic illustration of this reasoning also serves this same purely methodological objective (see figure at end of article). A logic system of the tactical procedure also is given there.

The example in question shows that even with a given indisputable advantage, development of the procedure is far from a simple matter. Such is the nature of air combat and accordingly such is the level of complexity of tactical creativeness.

Thus a tactical procedure is realized in an entire system of special actions which make up its evolved content. The content itself is tied together into a single orderly whole with the help of the structure of the procedure, which coincides in form with the commander's decision for combat (combat flight, combat actions). The essential aspect of the tactical procedure permeates all points of the commander's decision, which gives it tactical meaning and saturates man's will in combat with tactical force.

An important point of tactical creativeness obviously will be a prediction of the effectiveness of a procedure found through a strenuous collective search. We have to stipulate right away that providing an absolutely precise assessment is difficult and perhaps even generally unattainable, which is dictated by the deep nature of combat. But man the warrior is far from helpless in predicting the effect of a tactical procedure he has worked out. Here man's most universal advantage over any piece of equipment comes into force—his remarkable ability to generalize practical experience. Therefore we have the basis to formulate requirements for a tactical procedure as conclusions from an analysis of military aviation practice (see figure).

The suggested list of requirements is only a methodological attempt to denote an approach to the procedure from standpoints of an assessment of its "tactical worth." Unfortunately combat will name the real price of a procedure. Fortunately, the enemy's tactical achievements are accountable to this same judge.

But the question arises: Is any tactical search in modern, short-lived, dynamic, maneuverable, missile combat realistic at all? The answer to such a seemingly naive question cannot be simple and unambiguous, or even undeniable.

It would appear that the hope for tactical enlightenment in the process of combat is nothing other than self-deception. The elaboration, calculation, numerous checks and run-throughs, and comprehensive tests of tactical inventions—this is the objective which has to be continually "attacked" on the ground. Not only elaborate, discover and discuss, but take what is found to the extreme of simplicity and clarity, to reliable practical feasibility. In the air it will remain only to tie in the combat situation (based on a negligible number of signs of conformity) with a tactical procedure assimilated literally at a physiological level. This will be an act of unbelievably difficult and high professional creativeness.

Meanwhile to believe that a combat pilot always will find the optimum solution to a combat mission also is an illusion. In combat it sometimes will be necessary to begin a clash without full assurance of the precision and correctness of one's actions. This is natural: air combat always is an encounter with the unknown. In that case, however, one has to realize that he is entering a zone of increased risk where the important thing is to seek a hook on the situation from which it is possible to pull a thread of more and more regulated and purposeful actions.

Then how should combat be conducted if it contains so many unstable, unpredictable, unsteady moments? It has to be conducted boldly, daringly and decisively (which is absolutely unattainable without profound and comprehensive tactical competence) while remembering that the enemy is swimming in the very same sea of random factors. Naturally, the stronger one side succeeds in agitating this sea, the more difficult it will be for the other side to hold out against impacts of the waves of the combat unknown. The tactical procedure then is on the one hand a damper of the waves of the unknown heading for us from the enemy, and on the other hand it is a generator of those very same waves which we are bringing down on the enemy.

Sample List of Requirements for Tactical Procedure

—Presence in the procedure of an element of consciously applied stratagem, which makes it difficult for the enemy to make a rational decision and puts him face to face with uncertainties not subject to being rapidly overcome;

—Simplicity in determining signs of applicability of the procedure which permits analyzing combat situations quickly and purposefully and comparing them with reliable criteria characterizing nodal points of the procedure and conformity of specific conditions to previously elaborated tactical preparation;

—Orientation of the procedure toward priority seizure of the initiative, i.e., toward achieving that condition which the enemy will perceive as threatening and consequently he will be forced to react to our actions and will lose freedom of will;

—Possibility of instantaneous development of the procedure according to several actions in any stage of realization. Or in the extreme case, alternation of stages of a single-option development of combat events with stages containing the possibility of further action under several options;

—Combination of offensive and defensive elements in the procedure permitting a rapid transition from decisive attacking actions to active defensive actions;

—Simplicity of technique of executing tactical actions included in the procedure, accessibility of execution of combat roles to all participants of the common affair;

—Saturation of the procedure with psychological moments that can raise the value of all our plans in a most effective manner.

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Regiment's Use of Cards, Cues in Training

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No 2, Feb 88 (signed to press 31 Dec 87) p 46

[Article by Maj A. Volk: "On the Course of Restructuring: Fashion or a Demand of the Time?"; first paragraph is AVIATSIYA I KOSMONAVTIKA introduction]

[Text] The regiment commanded by Order of Red Star wearer Lt Col N. Ivanyuk basically fulfilled its socialist pledges in the past training year and continues to be among the foremost military collectives. More than 40 percent of outstanding subunits and over 50 percent of outstanding crews have been trained here. The basis of

the leaders' success is an intensification of the training process and effective use of the training facility and progressive aviator training methods.

One often hears lately that problem-oriented training, the Shatalov method, must be used more actively. What is this? A fashion or a demand of the time? The opinion is the same for all officers of the foremost regiment—trainees have to conduct a creative quest at the airfield and in classroom activities without fail. This raises their activeness in assimilating a subject and at the same time prompts the class instructor to seek new methods for presenting material.

"Having taken the method of mathematics teacher Viktor Fedorovich Shatalov from Donetsk as the basis," says Lt Col N. Ivanyuk, "we achieved a considerable shortening of time norms for placing young aviators in formation. The outstanding subunits and crews, the high percentage of 1st and 2d class specialists, which also means the increase in combat readiness, convincingly confirm the correctness and effectiveness of application of this methodology in the unit."

The essence of the Shatalov method is compressed information based on signal-symbol cues passed by the class instructor to the trainees.

The regiment worked out master lesson plans, training cards (UTK), and training task variants in which basic theoretical material is coded in the form of individual key words, conventional symbols and charts, letters and numbers. They contain the basic information. The letters and words are used for transmitting the purpose of an object and of announcements, and the figures are used for information about tactical-technical characteristics and reference data.

The people here took account of contemporary scientific recommendations in adopting the training cards in the training process. In particular, the class instructor uses several channels of communication with trainees, the basic ones being aural and visual. The visual channel is the most productive. It is not for nothing that the saying affirms that a picture is worth a thousand words.

Those in the regiment also took account of the fact that the volume of memorized material sharply decreases during the first nine hours after class. Only 30 percent of the information remains in memory. The conclusion suggests itself: material has to be repeated at least 3-5 times. It was noted that effectiveness of the training process grows if in the next class the instructor evaluates each person's knowledge for the full extent of the lesson.

Nevertheless, the training cards developed by Lt Col Ivanyuk and his assistants play the primary role in the process of training in the unit according to the Shatalov method. These are sheets on which signal cues are arranged in the form of separate parts or blocks. The training cards' configuration permits them to be decoded

quickly and the training material presented in an easy, compressed and logically strict manner. Blocks differ from each other in shape, color and size. A great deal of time had to be spent determining the optimum training card variant for each category of personnel; on the other hand, now the cards are not overloaded with extraneous information but reflect the essence of the class in a simple, logically consistent and expressive manner.

The most important thing of course is the fact that in contrast to traditional methodologies presuming some kind of consistent scheme of actions by instructor and trainees (narrative-demonstration-practice), the new methodology permits a significant intensification of the training process. The fact is that here the narrative, demonstration and practice go on in parallel as it were, almost simultaneously.

The classes themselves take place somewhat differently. Use of the training cards and especially special training assignments (situation-tasks) permits a significant increase in combat training effectiveness by activating the trainees, raising their interest in the topic being studied, and using elements of competitiveness in the training process. Without going into detail, I will note that the basic criteria for grading trainees here are the time that blank forms with answers are turned in, the decision scheme, use of formulas, computations, and introduction of corrections. Also of value is the fact that the class instructor can work with each person at any moment (explain mistakes made, suggest a correct path to a solution) without distracting others.

People in the unit were convinced that transition to the new methodology also had a positive effect on the state of military discipline.

It is common knowledge that anything new has many difficulties and obstacles to overcome before it firmly enters practice. The use of technical training equipment, schemes, diagrams, drawings and tables generally is a customary matter, but what is to be done about trainee synopses? The fact is that the methodology being used in the regiment provides that no notes be taken in studying the most difficult lessons in the first stage so as not to disturb the effect of perception. It was not very long ago, however, that lessons were written down as dictated by the class instructor. Now we decided to reject this, since information received by personnel visually and aurally is assimilated more firmly. Classroom training aids and the simulators have begun to be used more actively. Only after a repeat presentation of the subject do the personnel transfer the content of the master synopsis into their workbooks. It is hardly necessary to mention that they do this not mechanically or thoughtlessly, but with comprehension and imagination.

The people also rejected questioning aviators immediately after a lecture, since a weak, shaky or even incorrect answer only confuses the trainees.

The experience of conducting independent training in the foremost regiment also merits attention. The fact is that it is not difficult at all to depict the most complicated provisions of training material on large posters in the form of symbols already familiar to us. One poster should be hung in the classroom and another exactly like it in the barracks. The benefit from this is obvious, as is the benefit from the practice of conducting self-monitoring, where the personnel themselves ask questions of a colleague. Grades are given for each answer and then are added. If one and the same question is given to many persons, succeeding answers are graded more strictly with consideration of repetition. This means the audience is attuned to heightened attention and higher activeness.

And so primary emphasis in organizing the aviator training process in the training regiment was placed not on assimilating ready-made results, but on a search for them in the course of the class. In other words, the methodology itself shapes the trainees' cognitive independence, develops their creative abilities and activates thinking, since the soldiers are not receiving knowledge in a ready-made form but are acquiring it in the process of strenuous creative activity. With such training the aviators' energy and abilities are directed at assimilating knowledge both by the traditional method and by advancing, substantiating, proving suggestions and hypotheses and testing their correctness in practice.

It cannot be said that advantages of the new approach to specialist training were accepted by everyone in the regiment at once, without hesitation. The fact is that much time was spent just working out the training cards. We will repeat, however, that success is substantial. And now people in the regiment are acting in the spirit of the times—with initiative and imagination, fighting inertness and stagnation—since they are firmly convinced that high combat readiness demands tireless military labor and the application of progressive scientific training methods.

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German Rocket Specialists' Work for United States Described

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[Article by Ye. Yermakov: "The Nazis and the Pentagon"]

[Text] On 3 April 1945 Himmler gave the order for evacuating technical personnel of an underground plant near Nordhausen to the "Alpine Fortress." At this enterprise engineers of the Mittelwerke firm carried out series production of the Third Reich's "secret weapon"—the

V-1 winged projectiles and V-2 rockets—under the direction of specialists of the Peenemuende rocket center. The principal work of assembling the "weapons of reprisal" fell on the shoulders of prisoners of the Dora underground concentration camp.

From the beginning of January 1944, when the underground plant began operation, until the work of manufacturing missiles shut down, around 30,000 prisoners died in the camp. After all technical documentation had been gathered up, the S.S. blew up the exit tunnel, burying about another 2,000 prisoners alive.

In early April technical personnel assembled at the Alpine Fortress headed by S.S. Brigadefuehrer W. Dornberger, chief of the Ordnance Department, and Sturmbahnfuehrer W. von Braun, director of the liquid-fuel rocket program. The creators of the Third Reich's "secret weapon" did not know that they already had been sought long ago by representatives of the U.S. Special Services under the secret Operation "Paperclip," but they reasonably assumed that they would not be subject to punishment and would be used in the United States and Great Britain as valuable specialists in the area of rocket construction.

That is what happened. Operation "Paperclip" continued right up until 1948. During the operation around 500 Peenemuende specialists were interned in the United States and were allocated to various American firms specializing in the field of rocket construction. Dornberger, Peenemuende Chief Designer W. Riedel; K. Debus, creator of the V-2 rocket launch complex; and certain others were sent to Great Britain, where they began work on assembling and launching captured V-2 rockets. Around 3,000 persons died and over 6,000 were seriously wounded during the war as a result of the bombardment of London with these rockets. Nevertheless, Dornberger and other Peenemuende specialists returned safely to the United States after completing experimental launches of the captured V-2 rockets, avoiding just punishment for their crimes during the war.

The "von Braun team" numbering over 100 persons carried out the assembly and launch of captured V-2 rockets in the United States. Soon von Braun began developing a more advanced rocket, the basis of which was the A-9/A-10 project worked up at Peenemuende under the Amerika program (creation of rockets for bombarding the United States).

The Nazi criminals felt rather free in the United States. Very soon their prisoner of war status was rescinded and all finally received U.S. citizenship. The Pentagon was very interested in using the German specialists. The "von Braun team" created the Redstone, Jupiter and Pershing rockets for the needs of this department. K. Ehricke, a Peenemuende specialist, played an active role in developing [razrabotka] the first American Atlas intercontinental rocket and Debus worked on creating launch

complexes and the launches of all Pentagon rockets. Dornberger, who became the head of the Bell firm's aerospace department, took part in creating the first U.S. Discoverer military satellite with a rocket engine developed by this firm. But a role only as valuable associates in the field of rocket construction did not satisfy the former Nazis inasmuch as in their opinion the presence of a powerful U.S. S&T potential demanded a qualitatively new application in military affairs.

According to von Braun's admission, the idea of militarization of space was nurtured by them back during the work in Peenemuende. In his very first appearances in the United States he declaimed for creating [sozdaniye] artificial Earth satellites capable of carrying nuclear weapons aboard for bombing the territories of the USSR and its allies. The former Nazis also proposed many other military space programs, but chief Nazi missileman Dornberger illuminated the idea of militarization of space with greatest definiteness. He stated: "It is quite obvious that for the military strategist space is an expansion of the area of military operations in a vertical direction. . . . It is possible to keep the entire arsenal of the most sophisticated and fully automatic weapon systems and employ them (in space)."

But implementing these ideas required a rocket-space system which did not exist in the United States. At that time the Pentagon was not trying at all to develop space programs, considering them unpromising in the military sense. U.S. military departments limited themselves only to plans for creating photo reconnaissance and certain other (weather, navigation, communications) satellites. In order to move things off dead center the former Nazis (especially von Braun and his "team") decided to grab key positions in the development of further U.S. space programs.

The launch of the first American Vanguard satellite and creation of a corresponding launch vehicle were planned by the Naval Research Laboratory. Von Braun and his immediate superiors from the Redstone Arsenal turned to the Pentagon leadership more than once for permission to conduct parallel work to create a satellite, but they did not receive support, and here is why.

While still working for Hitler, the "rocket baron" once declared with conceited zeal that the V-2 rocket was ready for series production. In fact, however, it was only a year later that they managed to fix numerous troubles (von Braun even visited the Gestapo for this reason). And so also in the 1950's in announcing the possibility of launching a satellite using a modified Redstone rocket von Braun was far from the truth inasmuch as the rocket required substantial modification. It is interesting that in both cases he was aided by H. Oberth, who was engaged in theoretical research on the V-2 and later on the Redstone rocket.

Nevertheless, von Braun was lucky. The widely advertised Vanguard program suffered a fiasco. On 6 December 1957 the rocket with the Vanguard satellite rose above the pad, but after just a second it fell and exploded from the impact. Five days later von Braun received approval for his program for launching the first American satellite, and here he took a rather strong risk. Launches of Redstone rockets with an additional solid-fuel upper stage ended successfully only in half of the cases in 1957.

Nevertheless, on 1 February 1958 the American Explorer-1 satellite was inserted into orbit with the help of the launch vehicle named Unona-1. The American press called former Peenemuende specialist W. von Braun the "father" of national practical astronautics.

Thus the position of the Nazi missilemen was legalized not only in the United States, but also throughout the capitalist world. As early as 1958 von Braun gave a report at a regular congress of the International Astronautical Federation entitled, in his inherent manner: "How I Launched the 'Explorers'." Soon he headed up the G. Marshall Space Flight Center and some time later also became deputy director of the U.S. National Aeronautics and Space Administration. Debus headed up the Cape Canaveral Space Center, later named the J. Kennedy Center. Other former Peenemuende specialists such as A. Rudolph (who was in charge of an underground plant in the Harz Mountains) and K. Ehricke also became well known.

The idea of militarization of space nurtured by the former Nazis began to be implemented with the present U.S. administration's proclamation of the notorious "strategic defense initiative" in the early 1980's. The Nazi spirit penetrated the Pentagon, and we already know what this leads to.

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